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The impact of the farm economic crisis on the career aspirations of Iowa farm youth

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Ahmed, Kazi Aziz, Ph.D.

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The impact of the farm economic crisis on the career aspirations of Iowa farm youth

by

Kazi Aziz Ahmed

A Dissertation Submitted to the
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1 INTRODUCTION

The economic farm crisis of the 1980s has affected virtually every segment of the rural population. The crisis, which began in the early '80s, has already forced one-third of America's farmers out of business and is expected to lead to the demise of an additional 5 to 10 percent of the nation's farmers each year for the foreseeable future (Otto, 1986). The loss of these farms has created a ripple effect that threatens to impact both the private and public sectors for years to come. Agribusiness operations, especially those supplying inputs and marketing services at the local level, have been particularly hard hit. For these firms the liquidation of individual farm businesses means, among other things, uncollectible commercial trade credit, losses through third party security interests under Article 9 of the UCC, and more integrated ownership of crops and livestock (Ginder et al., 1986).

The highly influential role played by financial institutions in the agricultural arena in the mid 1970s is well known. The credit system helped to fuel the substitution of capital for labor as capital increased from 17 percent in 1870 to 62 percent in 1976 while labor decreased from 65 to 16 percent for the same period (Cochrane, 1979). Correspondingly, by 1985, bank failures had exceeded depression era figures, with about half of the failures listed as farm banks (Business Week, 1985). As the farms, lending institutions, and agribusinesses came under increasing pressure, the

remaining private and public sectors of the rural communities suffered as well. The decrease in economic resources in general and the decrease in the local tax base in particular resulted in a diminution in the range and quality of services available to the public in rural areas. Fewer resources available for community welfare agencies, health care facilities, and fire and police protection were examples of indirect costs brought on by the crisis in agriculture. Schools, churches, and local main street businesses have also had to bear the brunt of the farm economic crisis (Heffernan and Heffernan, 1986).

Considerable attention, both academic and journalistic, has been directed to assessing the effects of the farm crisis of the 1980s. A recurrent theme running through much of this writing details the complexity of the relationships revealed, with the conclusion that a more ambitious research agenda is needed to gain a complete understanding of the dynamics of the rapid changes involved and the social and political implications of these changes for rural society. Accomplishing this broader understanding will necessitate a comprehensive analysis of the impact of socio-economic and political policy alternatives as they impact decisions relating to entry and exit from agriculture.

1.1 The Impact of the Farm Economic Crisis on Career Aspirations of Farm Youth

There is a decided lack of empirical research dealing with the effects of the farm crisis on farm youth currently attending the nation's colleges and universities. Historically, however, a significant research tradition has been dedicated to the

study of the occupational and educational aspirations of the nation's farm youth.

Most of the early studies in this research tradition, which began as early as the 1920s, dealt with the aspirations of youth in general (Coleman et al., 1972), although some focused specifically on rural youth (Burchinal, 1965). These studies generally had a common research objective - to analyze the range of problems encountered by youths entering the labor market (Falk, 1982). In the recent past, Kuvlesky and Reynolds (1970) reviewed and summarized hundreds of rural aspiration studies that analyzed occupational and educational aspirations as a function of residential, sex, racial, and other related social variables (Falk, 1982). Perhaps the most well known research on career aspirations is that conducted by a group of researchers at the University of Wisconsin. These studies, under the leadership of Haller and Sewell, and others, emphasized career orientations (aspirations), and ranged from simple comparisons of aspirations to sophisticated social-psychological models which focused on the aspiration formation process and how it translates into behaviors.

Despite the abundance of research on occupational aspirations, there are no studies that focus directly on how career decisions of college students with farm backgrounds are affected by crisis situations, particularly the present farm crisis. This study proposes to analyze these impacts by surveying a sample of farm reared youth currently attending a major land grant university. It has become evident over the past few years that the university environment is becoming an increasingly important arena in which to study the career aspirations of farm youth (Beale, 1979). Lyson summarizes the reasons for this when he writes:

> "...proportionately more farm-reared men are going to college than at any previous time to prepare for agricultural careers in general and farm-

> ing careers in particular. These young men may represent the leading edge and be the vanguard of tomorrow's rural farm sector. As farming becomes increasingly specialized and complex, a college education may be required to supplement and complement the fundamental skills and practical knowledge learned on the farm" (Lyson, 1979:788).

Lyson also points out that with the increase of college educated men and women in the farming business, aside from changes that are technical in nature, that there is also a change in other, less tangible dimensions. He says:

> "... the consequences and the effects of the movement into production agriculture by college-trained men (and women), however, may well extend beyond the technical skills and competencies they bring into their new jobs. Previous studies have shown, for example, that educational attainment among farmers is highly correlated with a number of rather 'intangible' orientations, including commitment to farming, adoption of new farming practices, and farm policy attitudes. Certainly if going to college becomes a new normative rung on the agriculture ladder, we can expect to see not only changes in technical aspects of farming, but also a reshaping of the attitudes, values, and ideologies that presently characterize America's rural farm sector" (Lyson, 1979:788-789).

Lyson's observations make it very clear why studies like this one are important and timely.

1.2 America's Agriculture: Changing Structure of Opportunities

The focal point of this study is an analysis of the occupational aspirations of college undergraduate students with farm backgrounds. The study's primary objective is to identify the myriad of factors that influence the student's occupational aspiration, particularly those factors important in choosing farming as a career. To properly understand the aspiration level of today's rural youth an analysis of the

farming opportunity structure in the American agricultural system over the past four or five decades is necessary.

In the early 1900s it was very common for those writing about the American agricultural system to use the metaphor of the "agricultural ladder" to describe the existing opportunity structure in farming. It depicted the process of vertical social mobility, specifically the attainment of full-time farmer status, as being achieved by climbing the rungs of the so-called "agricultural ladder". What follows is an outline of the historical background of U.S agriculture, examined in light of the validity of the "agricultural ladder" perspective. The discussion will also point to the shortcomings of this model and will portray the nature of the objective reality that existed then and continues to pervade the social mobility process in agriculture even to this day.

1.2.1 Decline in intergenerational farm transfer

The "agricultural ladder" was a prominent theme in writings from as early as the 1920s through the 1950s. It was introduced by R. T. Ely (1917) and acquired its name in an article by W. J. Spillman, "The Agricultural Ladder" (1919). As summarized by Kloppenburg and Geisler, "the agricultural ladder theorists postulated that landless individuals 'climb' to farm ownership through a series of discrete, sequential stages. The basic rungs on the ladder consist of: 1) unpaid family laborer, 2) hired hand, 3) tenant farmer, and 4) owner operator" (1983:1).

Despite the efforts of many researchers to demonstrate the upward social mobility pattern of landless people to a land owning class, figures from the agricultural

census tell a different story. In fact, only rarely do the offspring of the landless achieve farm ownership. Even in the time period when the agricultural ladder concept was so popular, records show that land and farms were transferred more by intergenerational inheritance than by any other process. Over the span of this century the absolute number of full owner operators in the U.S has declined from 3.4 million in 1910 to 1.29 million in 1978. The 1982 U.S Agriculture Census reported a slight increase of operators in this category. The number of full owners reported for 1982 is 1.32 million. This process has considerably reduced the intergenerational land and farm transfer opportunities available to young aspiring farmers.

1.2.2 Permanent nature of the tenant farmer category

The agricultural ladder postulated the existence of rural class mobility. It was deemed a dynamic process whereby "climbers" eventually moved upwards from the bottom rung of the ladder, unpaid family laborer, to the top rung of owner operator. But analysis of the census data from 1900 to the present clearly shows that the tenant and the tenant class was a permanent component in the rural social system and not just a transitional phase.

From the very beginning, the tenancy system was an enduring feature of the American agricultural structure, both in the western as well as in the settled lands of the eastern seaboard. In fact, as Kloppenburg and Geisler conclude, "tenancy was an unhappy alternative for the immigrant in search of free or cheap acreage" Kloppenburg and Geisler (1983:4). The tenant class was well organized to vent its frustrations against tenurial practices of the land owners. There were riots and

strikes, both before and after the Revolution, against the high rents demanded by the eastern landowners (Zahler, 1943; Lynd, 1965; Zinn, 1980). Such violent behavior by the tenants indicates the static nature of the tenancy system - a system where people enter into a tenancy relationship with very little option of moving upward in the near future, if ever.

The system of land distribution practiced in the early years led to a bimodal class structure, with an entrepreneur class owning large tracts of land on top, and a class of tenants who rented land from them on the bottom. The Ordinance of 1787 allowed for disposition of public land 640 acres or larger in size. The states also followed the federal policy of selling large tracts to entrepreneurs. The 1821 New York census showed fully 43 percent of its total of 185,851 farmers were tenants (Gates, 1973:36).

The Homestead Act, which was designed to democratically distribute free land to the small producer, had a quite different impact. In reality, it reinforced the Ordinance of 1787 and only accelerated the process of land monopolization (Mann and Dickinson 1980). The 1880 census of Agriculture, the first to tabulate farms by tenant status of the operator, showed that a quarter of the farms were operated by tenants. In 1910, about 38 percent of the farmers in the United States were tenants. By 1935 the percentage of farmers in the tenant category increased to almost 43 percent of all farmers. As pointed out by Gates (1973) and Goodwyn (1980), the interest rates, ranging from 30 to 120 percent per year, contributed to the increase of tenancy in the frontier. Subsequent census records, however, show a gradual decline of tenants in the American agricultural system. By 1974, the percentage

declined to 11.3 from 12.9 percent in 1969 (Goss et al., 1980).

The relationship between the tenants and landlords was not always as smooth as the early writers would have us believe. Among the tenancy arrangements of cash rent, livestock share, and crop share, the latter was probably in the worst condition. In fact, some researchers argue that a cropper's position was worse than a hired laborer. Croppers were exploited and were locked into a debt-ridden peonage. They owned no work stock nor farm implements and totally depended on credit. Like the wage laborers, they brought only labor to the productive process. The dependence of a cropper on the landlord was so great that it was commonly believed that a cropper was "run by the landlord". Gray et al (1924) have shown that nationally, 23 percent of all tenants were croppers in 1920 while about 33 percent of the tenants were croppers in the South, consisting of both the black and white population (Sims, 1934). Given the status of the tenants, especially share-croppers, an escape from that position was almost impossible and was far removed from the chance of moving upwards into an owner operator status. At any rate, the absolute number of tenant farmers in the U.S has declined from 2.4 million in 1910 to 0.26 million in 1974. In 1978 the number of tenants went up slightly. The U.S Agriculture Census of 1978 reported 0.278 million tenants. But the 1982 Agriculture Census reported the ever declining trend of this category. The reported number of tenants for 1982 was 0.258 million.

The U.S Agricultural Census has also made available information on a third category of farm operators. These are the part owners. Like the full owner and tenant categories of farmers, the absolute number of part owners is also declining.

However, the rate of decline for the part owners has been relatively much slower. In reality their proportion to the total farmers has actually increased. In 1974, 0.628 million or 27 percent of all farmers were part owners. The number increased to .681 million in 1978, but showed a slight decline in 1982. The 1982 Census reported .656 million part owners. Part owners have succeeded in enhancing their farm size at a much faster rate than the full tenants and full owners. Consequently, even with the decline of their numbers in the Plains, Southwest, and Northwest regions from 1969 to 1974, part owners had more land in operations than the full tenants and full owners (Schertz, 1979).

1.2.3 The status of hired laborers

Like the tenant farmers, the existence of the wage laborer position in American agriculture was more a permanent than a transitional feature of the system, a fact that was not often acknowledged by the early researchers (Ham, 1940). Although family labor has been predominant in agriculture, it was often supplemented by hired labor. Both family and hired labor have been on the decline since the 1930s. In 1918, 24 billion man-hours were expended in farm work. By 1950, the total had dropped to 15 billion hours. And by the mid-1970s, less than 5 billion hours per year were reported. But hired labor has declined at a much slower rate than family labor (Durost and Black, 1978). Unlike the prediction derived from the agricultural ladder hypothesis, even as early as 1929 farm wages were typically not high enough for a farm laborer aspiring to be a farm owner to support the desire of investing savings toward a farm purchase. Most analysts agree that those who entered into

wage labor did so for a livelihood and had very little realistic hope of climbing the agricultural ladder.

1.2.4 From returns to labor to returns to capital

Agricultural growth has been characterized by the large scale adoption of mechanization, the development and deployment of modern biochemical farming practices, and the onset of federal farm commodity programs which have both boosted farm prices and reduced instability in agricultural income. The depression period saw a rapid decline in the number of farm operators, brought about through the mechanism of the foreclosure. About 40 percent of the nation's farmers were rendered tenant farmers soon after the end of World War II (Ball and Heady, 1972).

As timed passed, the cost-minimizing, productivity-enhancing technologies became more generalized. To counter windfall profits to early adopters it became necessary for the remainder of the farmers to adopt the new technologies in order to stay in business and to compete with lowering aggregate production prices. This generally resulted in the movement toward larger and larger farm sizes to take advantage of economies of scale. In the process, increased labor productivity reduced employment opportunities in agriculture, shifting farm returns away from returns to labor and toward returns to capital (Lianos and Paris, 1972).

The post-war period was characterized by both differentiation and "cannibalism" (Cochrane, 1979). Differentiation occurred because the economic growth patterns of the family farms were uneven and unequal. Small and less competitive farms went out of business leaving other larger units to cannibalize lands through

consolidation into already larger units.

1.2.5 Farm crisis of the 1980s and structural dualism

The gradual decline of the mid-size family farm over the past few decades and the increase in the number of both small and very large commercial farms have prompted some to see this decade as one characterized by "structural dualism".

It is argued that the current financial distress that has affected farmers, farm lenders, and rural farm-based communities, originated out of the inflationary conditions of the 1970s. Associated with these conditions was an unbridled optimism about the continued increase in demand for U.S. farm products in the world market. The '70s brought about a sudden acceleration in the expansion of farm operations with farmers taking advantage of inflationary growth and very low to negative real interest rates (Petrulis and Green, 1986). In addition, the decline in the value of the U.S. dollar allowed foreign buyers to purchase more American agricultural products, propelling agricultural exports upward by five-fold during the decade of the '70s. A significant share of the nation's farmers responded to the favorable market situation and borrowed heavily to invest in new capital equipment, new production techniques and increasingly expensive farmland. Average farm debt throughout the 1970s rose more than 10 percent annually and tripled by 1980. However, land values rose even faster, resulting in the feeling that investing in agriculture was going to be profitable once again.

By the early part of 1980s, the economy experienced a dramatic reversal. World wide recession had set in and many of the factors that stimulated economic expan-

sion reversed direction. The value of the dollar shot up, forcing foreign buyers to pay more for the same volume of agricultural products and leading to a general decline in agricultural exports. The debt-ridden American farmer found himself in an untenable position. They could not set the floor price of their grain lower than their foreign competitors, most of whom were highly subsidized by their respective governments.

By 1984, these factors combined to sharply lower farm commodity prices, reduce farm income, and lower U. S. farm exports by 13 percent from the peak of 1981. Government policy to control inflation through monetary controls hurt the farmers, because real interest rates rose to unprecedented levels of 8 to 10 percent and the index of prices paid by farmers began to exceed the index of prices received. Also with the decrease in net farm income the price of land (a major collateral for loans taken out by farmers) declined precipitously. By 1985, farmland values had gone down by 19 percent from their 1981 peak for the nation as a whole. In some farm-states and regions values had fallen by almost 50 percent (Petrulis and Green, 1986).

In sum, the number of farms in each tenure category, full owners, part-owners and full tenants, is declining. The historical decline and more traumatic decline in the 1980s has brought about a radical transformation of the structure of agricultural opportunities.

It may be concluded from the above discussion that the agricultural ladder conception describing the smooth upward mobility of a landless person to a farm owner operator was never an accurate reflection of reality. Most farm acquisition

by an aspiring rural youth occurred through intergenerational land and farm transfer. In other words, whatever social mobility occurred, it was restricted within a specific tenure system and not between them as suggested by the proponents of the agricultural ladder perspective.

With the present farm crisis, many farmers have already been dispossessed while many others are still deep in debt, existing on the brink of farm foreclosure. This has shattered the hopes of many young aspiring farmers as the traditional vehicle to farm acquisition has been attenuated significantly. The seriousness of the present farm economic crisis lies in the fact that even the intergenerational land and farm transfer process is now under jeopardy.

Although its full implications are not yet clear, structural dualism in American agriculture may also open up new opportunities for aspiring entrants to farming. In the emerging dual structure there could develop a system whereby more and more young aspirants find a way to enter farming by initially acquiring the status of a small farmer, either through purchasing land at depressed prices or through renting land as either a transitional or terminal status.

While the decline of farming opportunities is well documented, very little is known as to how potential young farmers perceive these changes. This study is an attempt to document the perceptions and attitudes of a class of potential future farmers and to assess the impact of these perceptions on entering a career in agriculture.

1.3 Statement of the Problem

While a good deal of attention has been paid to the factors associated with farmers exiting agriculture, a close examination of the literature dealing with the impacts of the farm economic crisis reveals a paucity of research attention directed to entry into agriculture. This study proposes to analyze the way in which potential entrants into agriculture assess the present condition of the farm industry and seeks to gain an understanding of how the farm crisis has influenced aspirants in their decision to pursue alternative career paths.

If historical patterns hold, the next generation of farmers will likely come from the ranks of the sons (and sometimes daughters) of present-day operators (Kavel, 1960). Obviously, not all farmers' sons and daughters make farming their career choice. Some voluntarily decide to pursue a different career path, while others, who may want to enter farming, are blocked because of limited opportunities to inherit, buy, or rent land. There is widespread speculation that the opportunity structure in agriculture is steadily eroding as the socio-economic condition of rural America continues to undergo change. As shown earlier, the agricultural ladder explanation has limited value in understanding the contemporary process of becoming a farm operator. Historical data consistently show that more farms were transferred intergenerationally than in any other way. With the adverse impacts of the present economic crisis, family farms are lost to foreclosure and other mechanisms, signifying a tremendous loss of opportunities for young rural youth to inherit or receive farms from their relatives.

Others argue that the farm crisis may actually work in favor of those seeking

to enter agriculture because of low land prices and the availability of inexpensive used farm machinery and other production inputs. While many objective economic assessments have been made of the changing opportunity structure, little is known about the way in which these changes are being perceived and about their impact upon those making career decisions about entry into farming. This research focuses on these issues by analyzing the career decision making process of farmers' sons who are currently attending a major midwestern land grant university.

1.4 Overview of the Chapters

Having stated and described the sources of the research problem, the next chapter will focus more specific attention on the occupational aspirations of youth in general. This chapter will examine alternative theoretical models of occupational aspiration developed and review the available literature in this field. Specific attention will be given to studies conducted by rural sociologists dealing with the occupational aspiration and attainment behavior of farm-reared youth in high sch Chapter 1, the procedures for gathering the data and the statistical techniques used in the analysis of career choices of farm youth will be presented. The findings of the data analysis will be presented in Chapter 4. Finally, the discussion, conclusions, and implications of the study will be the topic of Chapter 5.

2 LITERATURE REVIEW AND THEORETICAL PERSPECTIVE

2.1 Related Literature

Numerous empirical studies of the educational and occupational aspirations of high school and college students have been conducted by sociologists. As a result of the interaction between general sociological theory and this research tradition several models attempting to explain the occupational aspirations and choice behavior of students have been developed. Following the lead of the general sociological models, rural sociologists have conducted parallel studies focusing on the educational and occupational aspirations of rural youth. It has been suggested that, "the results of this research show that rural/non rural differences in aspirations are slight and seem to have diminished over time" (Falk, 1982:95). This research tradition will be reviewed in this chapter.

The chapter is divided into two major parts. The first reviews the research literature, appearing mostly in the fifties and sixties, which dealt with the occupational and educational aspirations, as well as the attainment levels, of farm youth. The second section will review some of the more general theoretical models, both social psychological and structural in nature, pertinent to this area of research.

Over the last three decades, rural sociologists have studied the problems re-

lated to the occupational and educational aspiration and attainment behavior of farm youths (mostly male high school students) in America. The rural sociologists' interest in studying career orientations of young people arises from a genuine concern over a social process that has been going on for over a century, i.e, the out-migration of a large number of rural youths to urban areas. The extent of the interest is evidenced by Kuvlesky and Reynold's (1970) review which summarized literally hundreds of rural aspiration studies conducted by social scientists. As numerous as they are, most of these studies are not grounded in any major aspiration and attainment theoretical perspective. Nonetheless, results from these studies have relevance for this investigation. They cover a wide range of issues related to youths' educational and occupational aspirations and the career attainment process. These issues may be classified under the following broad themes.

2.2 Individual Attributes and Aspiration Level

Like many concepts in the social sciences, aspiration is directly related to the attributes of the individual. Review of the literature suggests that individual attributes like age, gender, level of technical skill, experience in farmwork, and intelligence level, are all important variables in influencing occupational aspirations. Some of these attributes and how they relate to individual aspirations, are examined below.

2.2.1 Age

The significance of the age variable is best evidenced when both the average *age of measuring aspiration* and the average *age of measuring occupational attainment* are examined together. In a longitudinal study, Bohlen and Yoesting (1968) reported that nearly 60 percent of a sample of Iowa students averaging 17 years of age aspired to farming as an occupation. Eight years later approximately the same proportion of those who had aspired to farm, were actually farming. Kuvlesky and Bealer (1967), on the other hand, studied the sophomore classes of 74 Pennsylvania rural high schools in 1947, and in restudying them ten years later, concluded that occupational aspiration was not a very good predictor of future occupational attainment. Situational factors or a combination of variables might explain the polemic difference in the results of these two studies. However, one fact stands out very clearly. For the two studies, the average age at which aspirations were measured was not the same. Thus it may be argued that the aspiration level of the seniors, as indicated in the first study, can be expected to be more realistic than the aspiration level of the sophomores used in the second study.

2.2.2 Work experience

Exposure to agriculture could take place at home or in school for rural youths. Exposure to agriculture at home essentially involves hands-on work experience. It has been suggested that it is important to measure the youth's degree of practical work experience, especially with farming and farm related activities in occupational aspiration research. Molnar and Dunkelburger (1981) have pointed out the need for

studying the process of socialization as related to farm work roles. Lyson (1982) has found that previous exposure to agriculture either at home or at school conditioned the student's plan to farm. Similarly, Straus (1956) found that children from farms having greater economic potential and who had greater work experience more often opted for farming as a career.

2.2.3 Level of intelligence

The measured intelligence levels of high school students have been shown to have significant influence on their occupational and educational aspirations but only in combination with other variables (Sewell et al., 1957). Haller (1957) found that the higher the level of measured intelligence, the lower the plans to farm. He found that farm students of lower intelligence levels were more likely to aspire to farming than to any other non-farming profession.

2.3 Social Factors and Aspiration Levels

Although occupational aspiration is an individual level variable, few social scientists will deny the significance of social factors in influencing a youth's occupational aspiration. Researchers may argue as to how these factors influence an individual's aspirations or the degree of influence these factors have on aspiration levels, but they agree that aspiration studies are not complete without examining the influence of social factors (Blau et al., 1956; Haller, 1960; Bender et al., 1967; Lyson, 1979). A review of the literature on the occupational aspirations of farm youth yield several recurring themes, including a focus on such factors as

family status, *family size*, *sibling status*, *parents' retirement plans*, *parents' aspiration for children* and *farm inheritance opportunity.* Other social factors commonly encountered in these studies are *race*, *participation in affiliated organizations*, and *rural-urban differences.*

2.3.1 Familial characteristics

Among the most important familial characteristics that influence a youth's aspiration is *family status.* Family status refers to the social and economic position of the parents and children living with them. Researchers have shown that among farm families, high family status, in combination with other variables, has a significant influence on the son's occupational aspiration level. Kavel (1960) has shown that beginning farmers succeed in entering farming only if their parents are economically well off. Accordingly to Kavel, "farming opportunities are distributed unequally among farm boys. They are available to boys from families that can extend assistance. Thus, they depend on family wealth, family ownership of land, the ability of father and son to cooperate, and in some cases on readiness of the father to retire" (Kavel, 1960:16). Sewell (1957) also found a significant relationship between the level of aspiration and family status when the effects of some individual attributes, such as intelligence, are controlled. Similarly, Straus (1956) in his study of 148 high school students with farmer parents, found children whose parents are financially better off and who actually involve themselves in long hours of agricultural activities will disproportionately aspire to a farming career.

Some studies have reported the effect of *family size* on the aspirations of high

school students. Haller (1960), in his study of 109 seventeen years old high school farm boys in Michigan, found that those who planned to farm tended to be members of small families with three or four siblings. Using a very small sample, Straus (1956) reported a relatively high frequency of those who plan to select farming as an occupation, as coming from smaller families. The study also observed that *sibling status* has an effect on the choice of farming as an occupation, concluding that a youth would more often choose farming if he was the middle or the youngest child. Similar results were reported by Lyson (1979) in his study of students from southern land-grant universities pursuing a degree in agriculture.

Various other familial variables have been found to have an effect on the career aspirations of farm youth. Haller (1960) in his study of 109 high school farm boys in Michigan, found that parents of those who plan to farm tended to have low levels of *occupational and educational aspiration for their children.* Burchinal (1965) in his comparative study of rural non-farm, farm, and city boys, found farm parents were more frequently involved in their son's occupational planning. Children who planned to farm got positive reinforcement from their parents. Burchinal also reported that mothers seemed to be more actively involved in their son's occupational planning than fathers. Another familial variable that researchers have studied is farm *parent's retirement plans.* Kavel (1960) suggested that a farm boy's chances of successfully in entering farming depended upon his father's readiness to retire from active farming.

Molnar and Dunkelberger (1981) have recently identified a set of antecedent characteristics that contribute to an expectation to farm. Among these characteris-

tics they found *participation in agricultural organizations*, like an agricultural club, as having influence on the choice of production agriculture as a career. Several studies have also found that farm inheritance opportunity has a positive impact on aspirations to farm. Molnar and Dunkelberger (1981) reported that possessing a self-defined potential to inherit a farm influenced occupational choice. Lyson (1979), in his study of farm boys enrolled in southern land-grant universities and pursuing degrees in agriculture, also found a similar relationship.

2.4 Social Psychological Factors and Aspiration

Researchers studying occupational aspirations have consistently emphasized the importance of social psychological variables in analyses of this phenomenon. They have recognized the importance of accounting for the nature of the interactions between the individual and the social forces impinging upon decision making. Most of the studies have stressed the need to include the self-concept (Haller, 1960, Haller and Sewell, 1967), while others have studied the effects of value orientations related to work and people (Straus, 1956), and yet others have tested the impact of such variables as information seeking behavior (Haller and Sewell, 1967; Molnar and Dunkelberger, 1981), agrarianism (Schwarzweller, 1959), and commitment (Ford and Box, 1974). The following discussion includes some of the more important social psychological variables identified by researchers working in the area of occupational aspiration and attainment.

2.4.1 Personality and aspiration

Haller (1960) studied 107 seventeen year old high school farm boys from Lenawee county, Michigan in 1957. He compared the personality traits, social backgrounds, and educational and occupational orientations of those who planned to farm with those who did not. His findings showed that those who planned to farm lacked *self-control* (i.e., tended to lack ego strength and was emotionally unstable) and were either disinterested in people or were afraid of them. He interpreted his findings by suggesting that early vocational self-conceptions appear to be dependent upon what is presented to the farm youth in their surrounding environment - which is often times heavily geared to farming for these youths. On the other hand, among those farm boys who were unusually *self-reliant* and sensitive to outside stimuli (e.g., exposure to non-farm occupations), they began to utilize more and more of this kind of information and came to depend more and more on reference groups outside the immediate family. For some, their parents encouraged them to look outward, while for others, looking outward for occupational alternatives was a necessity because farming was not accessible to them. Haller argues that the outcome of the interaction of these variables affects the development of their self-conception as a non-farmer.

Haller and Sewell (1967) studied the *information-seeking behavior* of 932 Wisconsin high school farm boys. They tested the hypothesis that the more receptive a farm youth is to new information, the less likely a farm youth is to plan to farm. They found general support for the hypothesis. They found that farm boys, who because of low measured intelligence, are less receptive to new information, tend

not to choose professional or executive-level occupations. The authors argue, however, that choosing to farm is not uniquely influenced by low receptivity to new information.

Other researchers have studied the effect of value orientation variables on aspirations. Straus (1956) studied 148 high school students from farming background. He found significant differences in the attitudes and values related to work of farm boys and non-farm boys. He found that students choosing farming as a career preferred *working with things* as opposed to *working with people or ideas.* They also considered work as intrinsically good.

The significance of including value orientations of farm youths in aspiration studies was first demonstrated by Schwarzweller (1959). He investigated the structural antecedents and value orientations in the educational and occupational choice-making process among 240 junior and senior rural high school youths from four upstate counties in New York. He found that value orientations, such as hard work, service to society, and security, are relatively more important in "aspiration" than in "plan" situations. Aspirations involved the desire to attain a level of achievement in a free-choice situation. A plan, on the other hand, was seen as an anticipated course of action indexed by the actually expected situation. He also found that structural factors are relatively important in plan situations. Schwarzweller concluded that the functional importance of value orientations in the decision-making process seems to increase when moving from the stage of aspirations to the more concrete stage of implementing a plan.

More recently, researchers of occupational aspiration have reiterated that future

research should look into a range of variables that include various attitudinal and value measures that pertain to such dimensions as work, life style, and agrarianism (Lyson, 1982).

2.5 Aspiration and Attainment

Most of the studies on the occupational aspirations of farm youth have relied on data from cross-sectional studies. Although conflicting results have been reported on the issue of career aspirations of farm youth, many variables have been identified in the process that help answer important questions about the process. But these studies fail to answer a very important question, namely the nature of the relationship between a youth's occupational aspiration and his actual attainment behavior. Fortunately, some researchers have directed their attention to explaining the consistency between attitudes and behaviors. These studies are limited in number and somewhat inconclusive, but nevertheless offer valuable contributions to this area of knowledge.

Bohlen and Yoesting (1968) in their longitudinal study of seniors of 15 Iowa high school (1948 and 1956), found that among those who aspired to become farmers, indeed had a higher rate of attainment eight years later. In an attempt to answer the same question, Kuvlesky and Bealer (1967) reported on a survey of a panel of 1327 high school sophomores in Pennsylvania, representing 74 rural high schools in 1947. Ten years later when 1001 of the respondents were reinterviewed, it was found that a vast majority had not attained the type of occupation they had aspired to. This finding led the authors to conclude that occupational aspirations are not

very good predictors of future occupational attainment. They did report, however, that twenty-one percent of those who aspired to farming did succeed in becoming a farmer. Based upon a reanalysis of Haller's original sample of Wisconsin farm boys, Portes et al., (1968) concluded that the relationship between aspiration and attainment could be explained meaningfully if occupational groups are categorized into "higher" and "lower" occupational groups, rather than individually. Thus, they considered farm, blue-collar, and lower white-collar as lower occupational groups while professional and executive were seen as high occupational groups. Categorized this way, the data yielded quite different results. They found that aspirations for lower occupational groups led to lower attainment rates, while aspiration for higher occupational group led to higher attainment rates. They reported that thirty-nine percent of those who planned to farm actually became farmers, while fifty percent who chose professional-executive occupations actually attained that level. Portes and Haller also reanalyzed Kuvlesky and Bealer's 1947-1957 Pennsylvania data on rural boys and reported that the reanalysis yielded results supporting their own findings. They found almost everyone in the 1947-1957 Pennsylvania data entered blue-collar or lower white-collar occupations, regardless of aspirations whereas their 1957-1964 study on farm boys showed a smaller proportion of low aspirers entering high-prestige occupations and a much greater proportion of high aspirers entering high-prestige occupations.

In a recent study, Lyson (1982) reported the results from a panel study from the National Longitudinal Survey of the high school class of 1972. The sample used for this report consisted of 14,112 seniors in 1070 public and private high schools

from across the country who completed the base year (1972) questionnaire and three follow-up questionnaires in 1973, 1974 and 1976. Lyson concluded, like the authors of many previous studies, that farming plans as expressed by high school seniors are relatively poor predictors of actual farm job attainment fours years after high school.

It should be borne in mind that the conclusion drawn by these studies on the relationship between aspiration and attainment is not conclusive in and of itself. There are too many intervening factors that need to be considered before giving the final verdict on this issue. Lyson (1982), in his report, is quick to point out that future research should study other age cohorts to see if the background factors and conditions that enhance or dampen the expectation and opportunity to farm vary by age or previous work history. He also points out that there is a need to include variables that measure the attitudes and values pertaining to work, agrarianism, and life style.

2.6 Theoretical Perspectives

This section will review the general theoretical literature pertinent to this area of research. Despite the numerous studies conducted by rural sociologists on the subject of the occupational aspirations of farm children, there still remain many unanswered questions. For instance, the recent farm economic crisis has not affected all types of farm operators equally. For one-third of the farm operators it has meant losing their livelihood and being uprooted socially and physically. For others, however, the impact has been much less severe.

A great deal of speculation has centered around the negative impact of the crisis on the plans of potential entrants to farming. Another dimension, however, relates to the possibility that the crisis has also opened up potential opportunities for new entrants. There is now more land available for renting and for sale at more reasonable prices than there was only a few years ago. The Farmers Home Administration (FmHA) recently announced the lifting of it's self-imposed moratorium on sales of acquired farms. In Iowa, for example, the agency offered for sale its holdings of 317 farms totaling some 66,600 acres (Wallaces Farmer, 1987). Credit arrangements are still available, at least to certain groups. Nevertheless, certain indications point to the fact that farm youth have not taken advantage of these opportunities. The question is, are they unaware of the opportunities or are they overly cautious about their investments? These and other related questions are still to be answered by empirical data.

While there is a lack of literature specific to the research question that this study is proposing, several theoretical models do have relevance. Blau et al. (1956) have noted that social scientists have traditionally employed three different perspectives to explain why people enter different occupations. These perspectives represent three different disciplines. The first deals with the psychological characteristics of individuals and the process of motivation that govern their vocational choices. This perspective takes the social and economic structure as a set of given conditions that impose limits on how the processes operate. The second approach is derived from the discipline of economics. This approach focuses on the wage structure and other job-related economic factors. This explanation centers on macroeconomic

conditions and analyzes the impact of change in the labor market on occupational decision making. Unlike the first perspective, this approach takes the psychological motivation as given. The last model is the sociological approach. This approach focuses upon stratified social structures and tends to take both the psychological make-up of the individuals and the organization of the economy as given. It analyzes the effects of factors such as parental social status upon the occupational opportunities open to children.

This section of the chapter will review some of the theories, models, and concepts used in the area of occupational and educational aspiration research. Theories to be discussed are both social psychological and structural in nature. The social psychological theories which have been chosen for discussion focus attention on the individual and his interaction with the surrounding social environment. Included in this section are concepts such as occupational aspiration and occupational socialization. Models and theories that are structural in nature include status attainment models and the occupational choice model. Reference is also made to such important concepts as agrarianism, commitment, and personal responses to crisis. These concepts have an important bearing on the hypotheses to be tested in this study.

2.6.1 Occupational aspiration theory

Occupational aspiration theory actually refers to a number of theories which address complementary issues. Several theories could be logically placed in this category. This section will present the theoretical works of Ginzberg et al., Super, and Holland, starting with the vocational development theory or the occupational

choice theory proposed by Ginzberg et al. (1951). This theory posits that vocational development is a process that evolves in the course of three broad stages. As identified by Ginzberg et al., the stages include the "fantasy stage" (before age 11), the "tentative stage" (age 12 to 17), and the "realistic stage" (age 18 and above). In the fantasy stage, children believe that they can become whatever they desire. At the tentative stage a young adult begins to develop a set of values, interests, gratifications, and personality. Choices often evolve and change during this second stage. At the realistic stage an individual begins to integrate interest, capabilities, and values and uses these cues to evaluate the real environment. This latter stage also involves the exploration, crystallization, and specification stages. In the exploration period an individual reevaluates career alternatives in a very realistic manner. In the crystallization stage some kind of vocational pattern starts forming based upon the successes and the failures experienced in the exploration period. During specification the individual delimits the choice and elaborates by selecting a specific career, college, or graduate school specialty. During the college years, according to Ginzberg et al., many students roam through these three periods before deciding on a specific career direction.

According to Ginzberg et al., the choice, once made by an individual, is irreversible. This inflexibility occurs because there are emotional blockages that develop which do not allow individuals to change their plans. Such changes could be defined as failures or at least present a threat to self-esteem. Ginzberg et al. make the assumption that choices represent a compromise. The compromise calls for making rational assessment of how well the alternatives will meet desired career objectives

and satisfy the values and goals of the individual. The person must weigh the opportunities and environmental limitations and then assess the extent to which a maximum degree of satisfaction in work and life can be secured. The rationalization involved forces the individual to balance abilities, interests, and values against real environment career alternatives and thus make appropriate compromises.

Ginzberg's conceptualization of occupational choice has not been without its detractors. One criticism is that the model is a culture-bound conceptualization of occupational choice. The three stages and the corresponding age categories Ginzberg et al. talk of closely parallel the U.S. educational system. Thus much of the choice process is external to the individual, i.e, the educational system forces decisions on the student. A second criticism of Ginzberg's theory is that it is time-bound. His assumption that students around the age of 18 can make a realistic choice regarding entering full-time work is seen by many as unrealistic. More and more high school graduates are postponing a decision to enter full-time work by first going to college. A more probable age for making realistic choices on full-time occupations is approximately 22 years (Pavalko, 1971).

A theoretical model which is complementary to Ginzberg's is proposed by Super. Super (1957) developed a somewhat similar and yet more complex scheme of the developmental periods through which youth are assumed to pass. According to him there are six stages of occupational choice. These stages include:

1. Adolescence as exploration: developing a self-concept comparable to Ginzberg's period of tentative choice.

2. The transition from school to work: reality testing - concept partially com-

parable to Ginzberg's period of realistic choice.

3. The floundering or trial process: attempting to implement a self-concept-partially comparable to Ginzberg's period of realistic choice.

4. The period of establishment: the self-concept modified or implemented.

5. The maintenance period: preserving or being nagged by one's self-concept.

6. The years of decline: adjustment to a new self-concept.

Super's developmental stages of the occupational decision making process revolve around the individual's self-concept. He sees the outcomes of occupational choice as an attempt to attain an equilibrium between self-concept and the content of work roles (Pavalko, 1971).

Finally, the theoretical assumptions of Holland may be relevant. In 1966, Holland (1966) developed a model of the vocational developmental process. This analysis suggested that the individual develops a certain "modal personal orientation" as a result of his/her interests, personality, values, and abilities. Unlike Ginzberg et al. who focused on the personality aspect only, Holland argued that occupational choice is essentially a matter of attempting to maximize the congruence between personality characteristics and the characteristics of occupations. Holland identified six such "personal orientations" and discovered congruence with six major American work categories, which he classified as "occupational environments." Holland also suggested that career choices represent an extension of behavioral styles in the context of one's life work.

The theoretical assumptions of Super and Holland present a "chicken-egg" dilemma (Pavalko, 1971). Pavalko argues that empirical research on socialization

in professional schools has indicated that it is equally possible that the kinds of work people do may shape the kinds of personality and self-concept they exhibit and not necessarily the other way around.

These theories inform this study in terms of the interactions between individual characteristics and behavior, such as age, the emergence of self-concept and its relation to occupational aspiration, and the consistency criteria whereby an individual attempts to maximize the congruence between personality and occupational characteristics. However, they do not take into consideration the influence of the social factors on these individual level variables. The following discussion on the occupational socialization process sheds some light on this issue.

2.6.2 Occupational socialization

The concept of occupational socialization is an extension of the primary discussion of the socialization process of learning behavior. The occupational socialization theory is derived from symbolic interactionism and reference group theory.

Symbolic interactionism, as conceived by Cooley, Dewey, and Mead, emphasizes that the understanding of human behavior is a result of the way in which individuals perceive (in most instances through the mechanism of role-playing) the expectations of others in their social environments. Reference group theory, as it emerged from the work of Hyman (1942), centers on the identification of groups with which an individual compares himself/herself in arriving at a judgement of his/her own status. Reference groups can either refer to face-to-face groups or to general categories of persons.

Socialization is an important and central concept in sociology. It has been defined in many ways, but perhaps Merton's definition is among the most inclusive. According to Merton, "socialization is the process by which people selectively acquire the values and attitudes, the interests, skills, and knowledge - in short, the culture - current in the groups to which they are, or seek to become, a member. It refers to learning of social roles" (Merton et al., 1957:287).

More important to the study of occupational aspiration, however, is the phenomenon of anticipatory socialization, which refers to the unique ability of human beings to imagine or anticipate what it would be like to be a member of and to occupy a role in a particular group of which they are not presently a member. This is also referred to as "role playing." Group membership or role occupancy is not a precondition for anticipatory socialization. Thus, anticipatory socialization can also be thought of as self-socialization. This is so because a person is at the same time both the agent of socialization and the one undergoing socialization. The person socializes him/herself based on his/her true or false assumption and information about the group or role involved.

The concept of anticipatory socialization has several facets important to the understanding of socialization to occupational roles. For example, one dimension of crucial importance to understanding an individual's anticipatory socialization is the extent of previous "exposure" to the occupation as a viable alternative. Exposure could occur in several ways. It could come through exposure to role models, including parents, relatives, and close friends. These contacts are likely to be an important source of information that could be used by an individual to anticipate incumbency

in an occupation. Another important facet of the anticipatory socialization process is the length of time that a person has been considering an occupation. The longer the period of consideration, the greater the opportunity the individual has to imagine what the work would be like, and to explore the role expectations.

In this study, a student's exposure to the occupations of close relatives and friends will stimulate the anticipatory socialization process. It is safe to assume that farmed-reared youth, to one degree or another, will have been exposed to persons with non-farm occupations. One major reason for the increased exposure is that more and more family members have pursued non-agricultural occupations. Factors such as the lure of urban areas and the dramatic shrinking of the opportunities in U.S. agriculture have stimulated the pursuit of non-farm occupational alternatives for farm youth. This process of both horizontal and vertical social mobility of farm family members will certainly aid in exposing the youth to non-agricultural alternatives and may influence future occupational decision making.

The theories reviewed thus far approach the issue of occupational aspiration and achievement from an individual and largely social psychological point of view where the focus of attention is on individual behavior. The following section switches focus to the structural factors that might affect occupational choice and decision making.

2.6.3 Status attainment model

The status attainment model is actually a constellation of models that were developed in the latter part of the 1940s and 1950s and attempted to synthesize the social psychological and structural views of occupational aspiration and attain-

ment behavior. These models were based on certain theoretical assumptions. The first assumption was that ascribed social class status determines personal ability and performance and thereby influences educational and occupational aspiration. Second, there was a processual mechanism involved in the youth's effort to move from ascribed to achieved status. It was seen as social psychological in nature and involved the educational and occupational aspiration process. Aspirations were seen as being formed and modified early in life through social interaction. Finally, the models assumed that aspiration influenced attainment behavior.

Many of the SAM studies were informed by the pioneering work of August Hollingshead (1949). He was the first sociologist to explicitly take into account both the social structural and social psychological aspects of the stratification process. He studied the effects of curriculum location, educational and occupational aspirations, ability and performance. However, Blau and Duncan (1967) were the first to advance and actually test a causal model. They demonstrated the causal (direct and indirect) links between socio-economic status background to education and to initial and current occupations. Their findings suggested a pattern of career mobility (not intergenerational) in which there is relatively little movement into occupations at both the top and bottom of the status hierarchy and a relatively high degree of movement into occupations at the intermediate levels. Such levels included salesman, craftsman, operatives, and so on. Later, Sewell, Haller and Portes (1969) extended this model by incorporating aspirations and influence of significant others, thereby demonstrating the importance of the plans held by students. The model was further extended by Alexander, Eckland and Griffin (1975) who focused on the

role of educational expectations in their assessment of the theoretical prominence of student plans. An articulation of this theory is found in Otto and Haller's article. They write,

> "our understanding of the present state of theory concerning the status attainment process is that parental SESs are transmitted to sons by way of social psychological mechanisms that sequentially involve the adolescent's academic ability and performance, his significant-other status indications (expectations of definers and exemplifications of models) and his status aspirations. Aspirations are seen as the mechanism in the process. They are formed and modified in social interaction. The individual assesses his educational and occupational potential in light of his own demonstrated and recognized mental ability and academic performance. His self reflections (Haller and Portes) are complemented by the reflexive activity of his significant-others who assess his attributes and performance in communicating the expectation they hold for him (Woelfel and Haller). Given the structuring of the interpersonal relations along status levels, significant-others - e.g., teachers and peers - tend to be drawn from socio-economic positions somewhat similar to those of the youth's parents and provide encouragement from a similar value orientation. Formed early in the life course, aspirations influence attainments, the process being that education provides knowledge, skills and entree (certifications) to jobs that provide earnings supporting a given life style" (Otto and Haller, 1979:888).

Recent studies have substantiated the dominant models of status attainment through their supportive empirical studies.

The social class position of the students in this study is seen as having an impact on their occupational aspirations. The farm economic crisis has radically altered the social class position of many farmers, many of whom have either lost their farms are on the verge of doing so, or have suffered severe cutbacks in the size and scope of their operations. These losses will have ramifications for the entire family. From a previously defined higher class status, children from these families will now

evaluate and assess their life chances from an altered class position. Although the status attainment models detail the influence of ascribed social class positions on career aspirations, little research has been conducted to examine the effects of sudden changes in class position. It is anticipated that the current study will shed some light on this phenomenon.

2.6.4 Occupational choice model

In an attempt to develop a holistic approach to the study of the processes involved in occupational selection, Blau et al. (1956) developed the occupational choice model. Blau and his colleagues posit that occupational choice by an individual is a developmental process that extends over many years. Before an individual makes a decision he/she typically confronts many crossroads and is forced to choose between alternatives, thereby narrowing the range of future occupational choices. Final entry into an occupation is not solely dependent upon the crystallization of occupational preferences since the action of the selectors must also be taken into consideration. Thus, the model incorporates both the conditions for occupational choice and the conditions of selection as explanatory factors in analyzing entry into an occupation. Just as the study of the occupational choice process involves analysis of personality changes and development, the model also emphasizes the need for the analysis of historical changes in the social and economic conditions of selection.

In more specific terms, the model posits that the social structure has a dual function for occupational choice. First, it influences the personality development of the choosers in that the biological potentialities of an individual are molded by the

differentiated social structure. This results in diversity in individual characteristics, some of which may directly influence occupational choice. At the same time, a change in the social structure occurs which in turn results in a given socio-economic organization at any point in time. Some aspects of this organization directly determine occupational selection. In a later section of this chapter, a theoretical outline of the political economy of the structure of U.S. agriculture will be introduced. It is anticipated that the review will provide a perspective of the emerging social classes in the U.S. agricultural system and help identify the groups which stand to benefit the most from the existing emerging structure and those who will not.

2.6.5 Agrarianism and commitment

Prevailing value systems can be important in understanding the occupational aspiration and attainment process. At the general level, values can provide clues to understanding the underlying motivational structure so critical to the process. More specifically, certain value systems act to idealize aspiration to particular occupations and careers.

In order to comprehend the value system central to farming and rural areas generally, one must direct attention to the concept of agrarianism (Flinn and Johnson, 1974; Carlson and Mc Leod, 1978). Agrarianism is a value and belief system that originated in eighteenth century America. The reason for the importance of the agrarian value system is because of the central role of the values in the attitude formation and the behavioral patterning among groups sharing similar social status. Values tend to operate on a functional level in making choices among a given set

of alternatives. The consistent direction of the individual's choices among operationally defined alternatives indexes his value orientations. At an empirical level value orientations are measured by certain generalized conceptions - individualism, familism, security, service to society, and so on. Values have their origin in the situational complex which is externally and internally unique to each individual. However, individual sharing of a particular status position in the social structure is similar in some ways and people are likely to exhibit similar styles of life, similar life chances, similar situations and experiences and similar socializing influences. If this assumption holds true, we are likely to observe significant differences in the value orientations of the different social categories existing in rural societies (see Schwarzeller, 1959).

The agricultural beliefs and values prevalent in the U.S. arose from conditions that typified the colonial period of America, but had Northern European roots. In the medieval belief system, private property was considered an indication of high social status and work had high ethical significance. According to Brewster (1979), the synthesis of land and labor constituted the 19th century version of agrarianism. The objective reality of agrarianism was to be found in the Protestant ethic (Weber, 1930) of the dignity of labor and the virtue of the ownership of land and property. The Protestant ethic extolled a lifetime of hard work and was associated with material rewards as the inner worldly asceticism indicating spiritual salvation, or the outward symbol of being 'chosen', a rationalization that allowed the cohabitation of contradictory values and beliefs among the tillers of the soil. To this the Physiocrats added a special respect for the spirit of free enterprise.

Further justification of this general philosophy came from John Locke's high rating of property and the moral value of work. In America, the frontier psychology exalted the concept of work to a level of religious, personal, and social significance.

There have been numerous formulations of the characteristics of agrarian idealism. Each representation is slightly different from the other. However, one basic theme is the uniqueness of farming. According to Flinn and Johnson (1974:189-194), agrarianism is based on five tenets:

1) that farming is the most basic occupation

2) that the agricultural life is the natural life for man

3) that the farmer is economically independent

4) that hard work is a virtue

5) that an agricultural system composed of midsize family farmers is a building block of American democracy

The ideals incorporated in agrarianism can also be traced back to the basic tenets of Jeffersonian democracy. His belief in the family farm as the basis for democracy was well suited to the conditions of his time. His concept of democracy was built on his strong belief in the moral virtue of the farm population. However, in the course of time, agrarian idealism has constructed an "agricultural fundamentalist" view of society that Jefferson would not acknowledge as his own (Gulley, 1974).

American society has moved from a closed to a more open type of society. This change has affected every aspect of people's lives. Traditional beliefs, values, norms, and institutions have undergone major changes. Technological revolution is

probably the one factor that has contributed most significantly to the increasing rate of socio-economic changes in rural America. These changes are relatively recent and only in the first quarter of this century have farmers had to undergo radical changes in adapting to the altered social order. Today many rural people find themselves facing a dilemma. On the one hand, they are holding onto a system of beliefs and values that does not correspond to the realities of the socio-economic order. On the other hand, to be competitive, they know they must constantly adapt their way of life to the technological changes that seem to be coming so incessantly. In doing this they are moving away from the realization of many of the ideals expressed in the agrarian value system. For an analysis of the process by which farmers resolve such dilemmas, a probe into the theoretical discussion of commitment and consistent behavior is necessary.

2.6.6 Commitment and consistent behavior

Becker (1960) has pointed out that the concept of commitment has relevance for studies of occupational and career achievement. Becker states that, "we can explain the fact that men ordinarily settle down in careers in a limited field, and do not change jobs and careers with the alacrity of the proverbial economic man under changing market conditions, by referring to a process whereby they become committed to a particular occupation" (Becker, 1960). Similarly, commitment to farming or entering an agricultural job could be viewed as being, at least particularly, a result of the influence of the agrarian values held by an individual. Becker views commitment as an explanation of "consistent behavior." Consistent lines of

activity (allowing for diversity within a broad category) seems to imply the actor's rejection of feasible alternatives.

According to Becker, "whenever we propose commitment as an explanation of consistency in behavior, we must have independent observations of the major components in such a proposition: 1) prior action of the person staking some originally extraneous interest on his following a consistent line of activity; 2) a recognition by him of the involvement of this originally extraneous interest in his present activity, and 3) the resulting consistent line of activity" (Becker, 1960:36).

The act of entering a certain career involves a primary commitment. In making a commitment, an individual undertakes direct obligations toward his job. He finds that he has made a series of what Becker calls "side-bets." Two types of side bets are implicit in Becker's argument. The first type of side-bet involves a series of investments that an individual makes. The protection of the prior investment provides a secondary motivation for remaining in a situation that one would not choose if starting fresh. The investment represents his dues. Having paid his dues, he continues along the same path rather than beginning again in some new situation where a fresh set of dues are required. Investments already made represent a kind of bet that one will continue, as they will be lost if one leaves.

The second type of side-bet is less obvious. When a person enters a lasting relationship, he undertakes, in addition to direct obligations, a series of diffuse, unspecified, secondary obligations - the fine print in an unwritten contract or what Becker calls "commitment by default." For instance, the farm crisis may result a in call for a farmer's conforming to a set of social and economic difficulties that were

either never discussed or never thought about when he made the decision to take up farming. This view suggests that almost all commitments are of this open-ended sort. The more specified such obligations are, the fewer side-bets of this type are involved.

To be committed, one has to feel some sense of duty to carry out what may, at times, involve personal sacrifice or risk. This sense of duty explains why one honors an obligation in the first place. Thus, a person feels committed if he/she shares both a general cultural belief in the importance of keeping one's word and a belief that the specific thing being asked is a legitimate part of the general obligation he/she has undertaken.

Aronson and Mills (1959) have shown empirically that a person who has gone to a great deal of trouble to attain something, tends to value it more highly than those who attain something with a minimum of effort. The mechanism that explains this phenomenon is the need for cognitive consistency. Once an individual has voluntarily made a sacrifice or an investment, he/she has a psychological stake in proving that it was worth it. There is often a tendency to rationalize a situation when a person did not receive enough of what was invested by blaming self that the investment was not enough. But when the investment history is well documented, for example, in years of preparation and study, then rationalizing is not acceptable to self, and instead the person tries to achieve consistency by raising the estimates of the value of what they are getting. This is easily accomplished by the selective attention to positive features and ignoring or downgrading the unpleasant aspects. It may be argued that the greater one's investments and freedom in joining an

organization, the more likely the person is to discover that the group he/she belongs to is "pretty damned good" (Gamson and Modigliani, 1974:396). Thus, side-bets commit one behaviorally and the drive for consistency pulls one's attitudes along.

Commitment involves both attitudes and behaviors, but their order of appearance in the process varies in different views. For interpersonal trust, the commitment process starts with the production of strong positive feelings of attachment. These feelings then produce the motivation to action. The process is reversed in the side-bets paradigm. The individual finds himself committed in his actions. He/she must shoulder his/her share of the burdens of membership. Not to do so will result in forfeiture of the direct and indirect rewards involved in the side-bets. Thus, for one's piece of mind, the individual learns to care about the groups in which he/she has invested so much through his/her actions.

It must be pointed out that people will not always, in fact, feel committed and honor their obligations. They may rationalize their inaction by claiming that what is asked of them is not legitimate. In other words it is not in the unwritten contract to which they agreed. On the other hand, they agree that they have an obligation, but find it so unpleasant that they present apologies and extenuating circumstances instead of fulfilling it.

This theoretical discussion on commitment has implications for this study. First, it can help explain why certain individuals may continue to aspire to enter full-time farming or remain in agriculture despite the drastic farm economic losses incurred by friends or close relatives. This behavior could be explained by the two types of side-bets. Becker refers to the first type of side bet as a series of

investments that an individual makes. In the study, the young aspirant may have made those investments in the form of hours of actual farm work (presumably on the parents' farm with little or no pay). He may have followed up this investment by choosing an agriculture related major. Thus, he will try to be consistent in his behavior by protecting his prior investment. This protective behavior provides a secondary motivation for remaining in a situation that one would not choose if starting fresh. A complementary argument can also be made. Those who choose to change career directions because of the farm crisis probably have not made that investment or the primary side-bet. Thus, for them, plans to change career is not as much of an inconsistency in their behavior. Following Becker's second type of side-bet or a series of diffuse, unspecified, secondary obligations, it may also be observed that those who are committed to agriculture have a sense of obligation that is often not clearly spelled out. It is a mental process involving a set of beliefs and attitudes toward agriculture or for that matter non-agricultural occupations, that together molds a person's personality. Thus, giving him certain personality traits such as readiness to involve in personal sacrifice or risk, as well as a sense of duty toward the thing he is committed to can be influential in career decision making. For his peace of mind he learns to care about the category of people in agriculture and feels secure in identifying with that group. The reverse is true for those who are not committed to agriculture.

2.6.7 Response to social crisis

The structural model that will be proposed in this study intends to test the impact of the farm crisis on career decision making, specifically the decision to enter farming. In this study,crisis refers to a collective situation in which a social disequilibrium has occurred and has disrupted the normal life style of a large segment of the population.

A considerable body of literature has emerged which deals with the general issue of crisis. Crisis is often subsumed under the more general category, "collective stress" (Quarantelli and Dynes, 1977) which has been defined as a situation where "...many members of a social system fail to receive expected conditions of life from the system" (Barton; 1970:38). Others have argued for the necessity of looking at crisis as a multidimensional phenomenon. For example, Warheit (1968) and Waxman (1973a) state that crisis could be of either the consensus or the dissensus type. The dissensus type of crisis revolves around a situation with sharply contrasting views about the nature of the situation, how it came about, and what should be done to resolve it (Stallings, 1973). The consensus type of crisis is one where there is overall agreement on the meaning of the situation, the norms and values that are appropriate, and the priorities that should be followed in dealing with it (Quarentelli and Dynes, 1977).

Others who have studied crisis have defined it as a relationship between a human being and an environment precipitated by the inability of the human being (or social group or organization) to continue in some accustomed way of behavior. Crisis is a form of attention, of conscious, heightened attention, that is extracted

from persons in moments of emergency when a breakdown in our ordinary or routine ways of behavior is apparent. Individuals, groups, and whole nations periodically experience crisis (Thomas, 1909).

Social behavior is learned behavior. Language, attitudes toward others, conceptions of self, and career images are all consequences of the socialization process and manifestations of the individual's control over his/her environment and him/herself. According to W.I.Thomas (1909), control is the conscious or unconscious aim of all human behavior. Every element of culture is a reflection of a society's control over some environment. Equally true is the fact that every element of the individual socialization process represents a means of acquiring control. With personal or collective achievement of control, attention can wane and can be allowed to become dormant.

But periodically, control is threatened by new elements in the environment or by some incapacity on the part of the subject. For some reason or another an accustomed way of behavior no longer works properly. The sense of loss of control of the situation is followed by an awakening of attention. According to Thomas,

> "attention is the mental attitude which takes note of the outside world and manipulates it; it is the organ of accommodation ... (attention) is associated with habit on the one hand and with crisis on the other. The attention is relaxed when habits are running smooth, but when it is not then the attention is called into play and devises a new mode of behavior which will meet the crisis" (Thomas, 1909).

In the beginning of this section it was stated that the present farm crisis is a collective situation where a social disequilibrium has occurred and has disrupted the normal life style of a social group. In this particular crisis, there is a general

consensus about the parameters defining the crisis. Among the groups most directly impacted are the family farmers and their family members who are forced to respond to the crisis in one way or another.

Thomas (1909) points out that a crisis raises attention and levels of consciousness. The present farm crisis has increased the stress on the normal process of farm transfer from one generation to the next. Also, it is reasonable to assume that the crisis has had a impact an farm reared students' attitudes toward farming, their attitudes towards people in general, their conceptions of self, and their career images. It is very likely that those who want to farm will feel a sense of loss of control to at least some degree over the social and physical environment. Thus we might expect that a significant number of students who had aspired to farm have reevaluated their goals and sought out alternatives. However, it is also possible that a group of students who had aspired to farm but were blocked by limited opportunities may now evaluate the situation differently and see some opportunities opening that did not exist before.

2.7 Changing Structure of U.S. Agriculture: A Theoretical Outline

In an earlier section, Blau's model of occupational choice was reviewed. The authors argued for a holistic look at the occupational choice process. They suggested the need for focusing on the changing social structure in understanding the process of occupational choice. Keeping that suggestion in mind, the next section focuses on the changing structure of U.S. agriculture. The discussion will largely rely on the conflict perspective and will emphasize not only the change process but also the

new emerging social class structure in the American agricultural system.

Rural sociologists in the U.S. have for a long time avoided the use of a political economy model of U.S. agriculture. The first systematic social class analysis of the rural society, for instance, was undertaken by a non-rural sociologist, Arthur Stinchcombe (1961). His endeavor to extend Marx's mode of analysis to agricultural enterprises resulted in a basically static, descriptive treatment of rural social strata (Goss et al., 1980). In recent times, an increasing number of rural sociologists are devoting energy to developing a class analysis of U.S. rural society (Newby and Buttel, 1980). These works provide some fresh insights for analyzing the changing social and economic structure of U.S. agriculture.

2.7.1 The historical background

Marxist analysts of U.S. agriculture have repeatedly emphasized that the mode of production in U.S. agriculture is essentially a capitalistic one despite the contradictory location of both capitalist corporation farms and petty commodity producers (family farm). Some writers have argued that the American Civil War was a bourgeois revolution. It helped to bring together the three regional economies - the plantation south, yeoman west, and industrial northeast into a full fledged capitalist development (Moore, 1966). It reinforced the idea of the private ownership of land and capital. In the process, wage-labor has been established as the dominant form of non-family labor. Technological (instruments of production) changes have taken place at an unprecendented rate and capital has been systematically substituted for labor. Changes have also brought about the increase of nonfarm agricultural capital

in the form of large farm supply corporations and financial institutions. The state has also intervened to play a role via fiscal policy, influence of overseas markets, production controls and price supports, and technological research.

2.7.2 Relationships of production

Some very important changes have taken place in U.S. agriculture since the 1940s. It has been indicated that the dominant forces of production in agriculture are no longer limited to the farm sector only. It is increasingly rooted outside this sector. This is because of the unique nature of capitalist agriculture. In a capitalist agricultural system three basic stages should be considered. They are, provision of farm inputs, food and fiber raising (farming), and farm product processing and marketing (Donald and Powell, 1975; Frundt, 1975). Since 1940, provision of inputs by non-farmers has expanded substantially. Inputs include fertilizer, agrochemicals, machinery and equipment, petroleum, and finance (Donald and Powell, 1975; Frundt, 1975). In the U.S. by 1973, the input and product market stages were worth ten times more in dollar value than the farming itself. These changes characterize the progressive extension of capitalist relations from production of consumption activities (Goss et al., 1980).

The expansion of the non-farm stages of agricultural production is not the only change that has taken place. Along with it, other changes like transfer of ownership, labor, and managerial functions from the farm to off-farm organizations have also transpired. The mechanisms to transfer include credit provision, off-farm ownership and leasing by farm operators, custom operations, partnerships and in corporation,

and cooperatives (Haris, 1974; Rodefeld, 1978). For instance, farm land ownership and transfer is still undergoing changes. There are changes in aggregate levels of farmland ownership by farmers and non-farmers. Four major types of tenure status can be identified. They are full-owner operated (all land is owned by operator), part-owner (some land is owned, some is rented), tenant (all land is rented on a cash, crop-share and/or livestock-share basis) and hired manager (no land owned, salaried). From available data it is observed that acres owned (i.e., acres actually owned by full owner and part owner) by farmers declined from 58 percent in 1954 to 54 percent in 1964 (the Census definition of "farm operator" was changed for 1969; as a result subsequent data are not comparable to pre-1969 figures). Acres owned by part-owners increased slightly. Acereage owned by tenant farmers (particularly crop and livestock-share) have declined while total acreage owned by non farmers (and small numbers of farmers renting out some of their land) increased. This was the result of increases in non-farmer owned acreage (Rodefeld, 1978).

2.7.3 Non-farm ownership

Changes in farmland ownership, decline in the number of traditional farm operators, and other changes have led to a concentration of capital in the food and fiber raising sector from both within and various mechanisms linking it to off-farm agricultural capital. This process of social differentiation in the agricultural production process has also set the stage for exploitation of farmers by the monopoly control of non-farm segments of agriculture. According to Frundt,

> "the cost of agricultural inputs, the financing available for land rental or purchase, and the value of commodity sales through contracting and

> market controls are not determined by farmers. Through these means corporations can extract surplus value from the commodities which farmers produce. They do this through the manipulation of markets and exchange value rather than through control over the land itself" (Frundt, 1975:6).

2.7.4 "Propertied labor"

Similar theoretical arguments have been advanced by Davis on the exploitation of the "propertied laborer" or the contract farmer. He has suggested that contract farming allows farmers to own the means of production but not as an independent or an autonomous producer. Contract farming is agricultural piece-work based on contracts between non-farm capitalist firms and "independent" agricultural producers. Recent surges in demand have resulted in increased forward contracting for soybeans, corn, and cotton. In 1973, 75 percent of the US cotton crop was produced under contract. The market price for the products is determined by the non-farm capitalist. Farmers seldom receive high enough prices to cover their production costs and the value of their labor. Thus non-farm capitalist firms extract surplus value from the family farm or the propertied laborer. Davis also adds that "the family farmer may be drawn into relations of exploitation and control when purchasing equipment and supplies in markets dominated by monopolistic (or oligopolistic) corporate capitalists. Value is transfered from the farmer to the capitalist firm through both the credit arrangement established by the firm and the 'monopoly overcharge' embedded in the commodity that changes hands" (Davis, 1980:145).

2.7.5 Agricultural labor

In a capitalist economic system, labor itself becomes a commodity. It is bought and sold in the market. The American agricultural system poses a special problem when it comes to exploitation of wage-labor. This is true because much of the exploitation has been "concealed" within the farm family. Until recently, three-quarters of the total farm work force consisted of farm operators and unpaid family workers. Lianos and Paris have computed estimates of the relative share of the value accruing to capitalists, the relative share to labor, and rate of exploitation (capitalist share/labor share) for 1949-1968. They reported that there was a tenfold increase in exploitation, both of hired labor and family labor (Lianos and Paris, 1972).

In recent times, the number of total hired workers has increased. For example, during the 1974-76 period, 23 percent of the total farm work force consisted of full-time (150 days or more) hired workers. It is suggested that preceding trends will continue in the future (Rodefeld, 1978) . Most of these laborers are hired by large-scale farms. This articulation of hired labor power has allowed direct exploitation of the wage-laborer by the capitalist producers.

2.7.6 Emerging agricultural class structure

Given the mode of production in US agriculture and the means and the relations of production involved therein, a class structure of agriculture has evolved in recent times that is highly complex in nature and is continuously undergoing changes. Changes have driven farmers into a transitional social class (petty commodity producers). These activities are circumscribed by the unique characteristics

of agriculture. Changes have also brought about a dominant class in agriculture in the form of agribusiness corporations that provide both inputs and process and market outputs. They have been involved in an exploitative relationship to the farmers. With the state's protective role of the agribusiness firms, the class structure in agriculture has been polarized into a small group of wealthy agribusiness elites and a growing broad-based stratum consisting of agricultural laborers, part-time farmers, and "self-exploiting" family farmers.

The theoretical implications of the changes in the structure of US agriculture for this study are clear. This review has shown how the rapid development of the forces of production has removed the opportunity base from family farming to the complicated network of agribusiness. More specifically, as observed by Goss et al., due to 'recent changes in land ownership ... ownership by farmers - particularly small farmers and/or those just beginning – and intergenerational transfer have become more difficult as farm sizes, land values, and capital requirements have increased (Goss et al., in Newby and Buttel, 1980). In addition, Rodefeld has pointed out that numerous incentives have existed for the retention of farmland by former farmers and their heirs and its purchase by a variety of non-farmers (Rodefeld, 1978). It is thus becoming more and more difficult for beginning farmers to own and efficiently operate a farm.

However, the opportunity to enter farming has not totally evaporated. Although it is true that ownership is gradually changing form as capitalist social relations enter petty commodity production, it cannot be denied that new opportunities in agriculture are emerging. The emerging opportunity structure, however,

may not be commensurate with the opportunities young farmers have traditionally been used to. Those who want to remain in agriculture, but not necessarily in production agriculture, can take up salaried position with agribusiness firms. However, these positions demand higher skills and specialized knowledge. Thus, to take advantage of these opportunities, rural youth will have to secure some sort of formal college training. This study will look for signs signalling the emergence of this evolving opportunity structure.

2.8 Theoretical Model

Figure 2.1 represents the proposed path model to be tested in this study. The model consists of variables that are in an order which assumes a cause and effect relationship. It is customary in path analysis to view the position of the variables in the model as either exogenous or endogenous variables. The exogenous (prior or background, also known as independent) variables in the context of the model are left unexplained, while the endogenous (intervening, also known as outcome or dependent) variables are explained or assumed to be causally linked to the preceding variables (whether exogenous or endogenous or both).

The researcher often decomposes causal links in the model into several categories. When working with standardized partial regression coefficients in a loop free (recursive) model, the correlation between X_i and Y_j can be exactly decomposed into a direct effect, an indirect effect associated with paths connecting them, spurious effects associated with particular prior variables, and spurious effects associated with the correlations between pairs of source variables. In practice, however,

researchers decompose only the indirect effects in systems with more than three or four variables (Davis, 1985).

2.8.1 Model specification

The left hand side of the model contains the exogenous variables. These are the background variables in the model. Among others, there is a variable that measures the extent of the students' exposure to non-farm occupations and environments. These source variables are seen as directly and indirectly, via intervening variables, affecting the dependent variable. These variables are also correlated with each other, indicated in Figure 2.1 by curved double-headed arrows. This model has four exogenous variables and three endogenous variables. The outcome or the main dependent variable is called Career Aspiration. The dependent variable is linked with the prior and intervening variables through one-way arrows in the model.

In this model it is posited that a student's occupational aspiration is directly and indirectly explained by a set of background variables. Previous research in this area has suggested the kind of background variables that most influence the aspirations of farm children. Following these leads and adding some new ones, four exogenous variables have been specified that are believed to be important in explaining occupational aspiration and the other intervening variables in the model. The exogenous variables are Economic Status of the Parent, Parent's Agrarianism, Exposure to Non-farm Occupations and Environments and Son's Commitment to Agriculture. These are all construct (latent) variables indirectly measured by multiple observable indicators (details in Chapter 3).

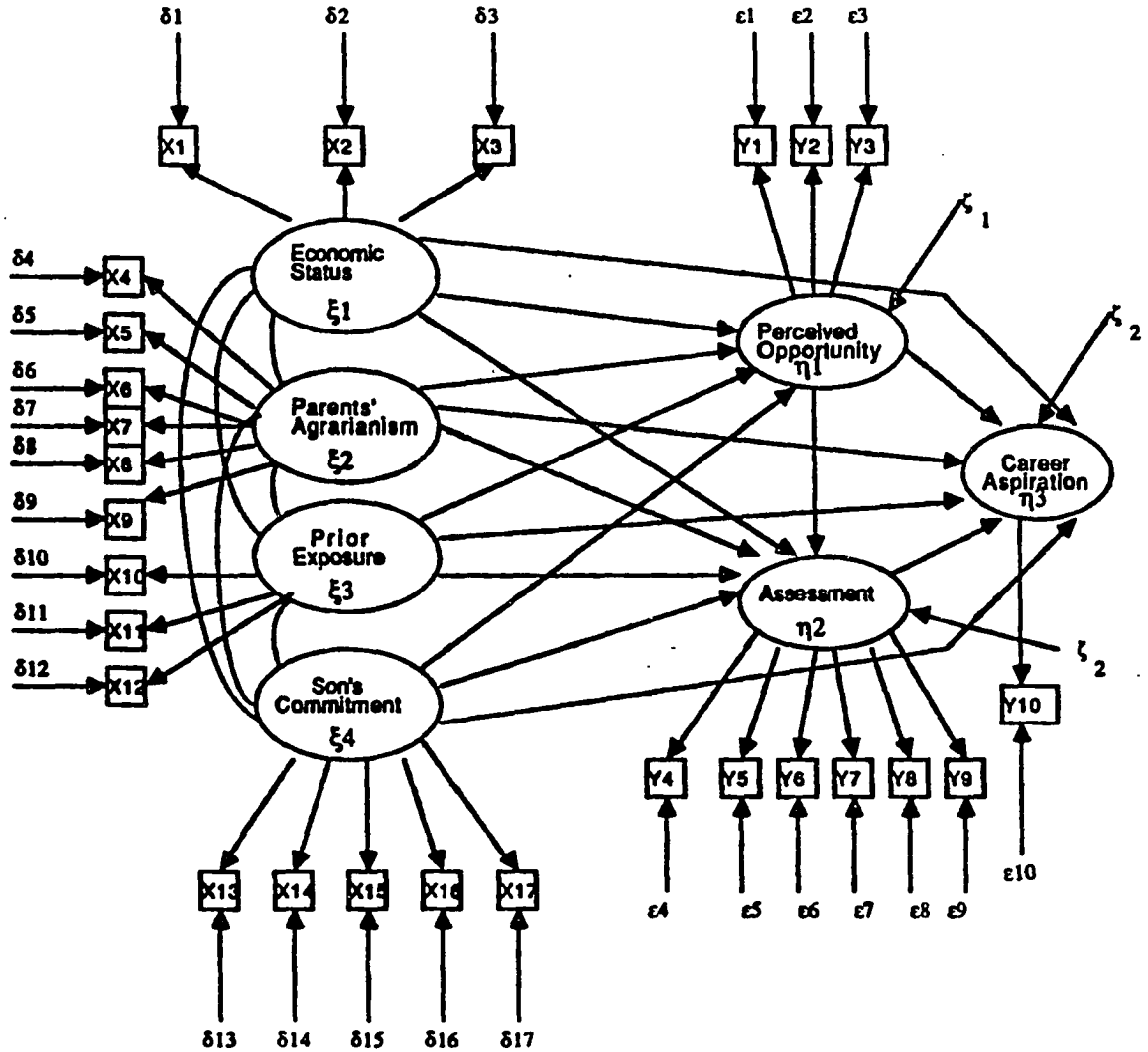


Figure 2.1: Original version of the path model to be tested using LISREL program

The direct effect between the background variables and the main dependent variable (occupational aspiration) is mediated by perceptual and attitudinal variables. It is hypothesized that between the direct effect of the background variables on student's occupational aspiration, that there are other operators, some of which are perceptual in nature, which are involved in the process. In the model, the perceptual variable is represented by a construct variable called Son's Perceived Opportunities of Land and Farm Inheritance. Just as the perceptual variable is influenced by the background variables, it in turn influences an intervening attitudinal variable and the dependent variable, occupational aspiration. The attitudinal variable specified in the model is called Assessment of Farm Crisis.

It is thus assumed that a student will assess the impact of the farm crisis and how it weighs on his plans for the future. We hypothesize that this assessment is influenced by both background variables and the other intervening variable, perceived opportunities. The student's assessment of the situation (either favorable or unfavorable) will have a direct impact on his occupational aspiration. Occupational aspiration is an indication of an intention that predisposes a future behavior of the aspirant. This is not to say that all aspirations are followed by corresponding behaviors. The amount of time elapsed and other externally constraining factors could account for an incongruency between aspiration and behavior. Although incongruency is an important issue in its own right, it is beyond the immediate scope of this study.

2.9 Statement of Hypotheses

The proposed path model (Figure 2.1) will be interpreted on the basis of the estimated path coefficients (γ s, for paths from exogenous variables and β s, for paths between and from endogenous variable to dependent variable). The standardized path coefficients take values between -1 to +1. The signs of the path coefficients determine the direction of the relationships between the latent variables. When no arrow appears between a pair of variables no relationship between the variables is indicated. The higher the coefficient, the stronger the relationship between the paired latent variables. The one-way single headed arrows represent the direct and indirect effects of the prior variables on the outcome variables. Following are the hypothetical relationships between the variables in the model. These hypotheses are stated in general terms but specifically they relate to each of the two versions of the proposed model being tested. The first model (Figure 4.1) explains the major dependent variable, occupational aspiration of son, measured by indexing the five ranked *ideal* career choices. The second model (Figure 4.2) is the same as the first model except that it replaces the major dependent variable with an index of the five ranked *realistic* career choices. These two index variables have been computed using a weighting scheme, explained in detail in Chapter 3. They have a theoretical value range of -10 to 10. A -10 means that a student has ranked the non-farm non-agricultural career choice as number one, non-farm agricultural career choices as number two, and so on. A 10 represents the reversed order i.e, the student ranked the full-time agricultural career choice as number one, part-time farming career choice as number two and so on.

2.9.1 Exogenous variables

Hypothesis 1: Parent's economic status is positively related to the main dependent variable, son's occupational aspiration. The higher the parent's economic status, the higher the score on the index variable measuring the son's occupational aspiration (i.e., the more likely to choose farming).

Hypothesis 2: Parent's economic status is positively related to opportunities of inheriting land or farm as perceived by son. The higher the parent's economic status, the higher the son's perceived opportunities of inheriting the land or farm.

Hypothesis 3: Parent's economic status is positively related to son's optimistic assessment of the farm economic crisis.

Hypothesis 4: Parent's agrarian values are positively related to opportunities for inheriting land or farm as perceived by son.

Hypothesis 5: Parent's agrarian values are positively related to the son's optimistic assessment of the farm economic crisis.

Hypothesis 6: Parent's agrarian values are positively related to son's occupational aspirations in farming.

Hypothesis 7: Son's exposure to non-farm occupations and environments is negatively related to his occupational aspirations.

Hypothesis 8: Son's ideological commitment to agricultural is positively related to his perception of opportunities to inherit land or farm.

Hypothesis 9: Son's ideological commitment to agricultural is positively related to his optimistic assessment of the farm economic crisis.

Hypothesis 10: Son's ideological commitment to agriculture is positively related

to his occupational aspirations.

2.9.2 Endogenous variables

Hypothesis 11: Son's perception of opportunities to inherit land or farm is positively related to his occupational aspirations.

Hypothesis 12: Son's perception of opportunities to inherit land or farm is positively related to his assessment of the farm economic crisis or optimism toward the future of Iowa agriculture and his chances of entering the profession of farming.

Hypothesis 13: Son's assessment of farm crisis or optimism about the future of Iowa agriculture and his chances of entering the profession of farming is positively related to his occupational aspirations.

3 METHODS

3.1 Sample Selection

This study is a part of a larger Iowa State University Agriculture Experiment Station (AES 2726) project designed to study the social and economic impacts of the recent farm crisis. The population of interest is comprised of all male Iowa State University undergraduate students with a farm background. The University Registrar's office used the list of actively enrolled student to select a sample of 1200 male students with rural route home addresses. Of course, not all residents with a rural route address are farmers by profession, so screening questions were included in the questionnaire to eliminate students with nonfarm backgrounds from the sample.

A set of two questionnaires was prepared for this study. The first questionnaire was prepared to tap the responses of the students regarding their attitudes, beliefs, assessment of the farm crisis, and career plans, along with other attributional information. The second questionnaire was designed exclusively for the parents of the student respondent to fill out. A few attitudinal items were common across both questionnaires, but for the most part, the parents' questionnaire was designed to get reliable economic data on the farm operation. Samples of the two questionnaires

are reprinted in Appendix A.

In the last week of October 1987, 2400 questionnaires (1200 student and 1200 parent) were mailed to the respondents. This was followed, two weeks later, by mailing a reminder note to all the students and parents who had not returned their completed surveys. Finally, two weeks after the reminder note, another copy of the survey was mailed to all those who had not responded. The overall response rate was 62 percent (this figure includes those who returned questionnaires indicating that they were not farmers or farmer's sons). Out of the possible total of 1200 pairs, 456 (38 percent) parents and sons returned their questionnaires and comprise the final sample for this study.

3.2 Measurement of the Observed Variables

Except for the primary dependent variables in the model, all of the latent variables are measured by multiple indicators. Reliability estimates and factor analyses were employed to select the multiple indicators used to represent variables. A factor loading of at least 0.30 was used as the criteria for being included in a factor structure. For scaled items, a set of items with at least a 0.55 reliability alpha coefficient (standardized) was used. There is some disagreement about minimum levels of acceptability in defining scale reliability. Nunally (1978) has suggested that, even in an exploratory study, coefficients of 0.70 or better are desirable. Cronbach (1951), however, argues that even modest coefficients are interpretable.

3.2.1 Exogenous variables

In the proposed model there are four exogenous latent variables. All of them are measured by using multiple indicators. The first exogenous variable is called Economic Status of the Parents. This is measured by using three variables that are economic indicators of the parents' status. The three variable are called NETFINC, PERFINC and LEVERAGE (Questions 27-30 in Parents' questionnaire, Appendix A). NETFINC measures the net farm income for 1986. The values ranged from 1 through 14. with one representing an income of $4,999 or under, and 14 representing $100,000 or more. PERFINC measures the percentage of the family's income coming from farming in the last three years. The range is 0 to 100. LEVERAGE measures the debt to asset ratio of the parent. It was computed by dividing TOTLIAB (total liabilities as of January 1, 1987 in dollars) by FASSETS (current market value of farm assets as of January 1, 1987 in dollars). This ratio was standardized by multiplying it by 100.

The second exogenous latent variable is called Parents' Agrarianism. This is a scale consisting of six attitudinal items. These items are designed to tap farmers' agrarian values and attitudes toward agriculture. The parents were asked to respond to a set of six statements corresponding to agrarian values. The responses varied on a five point Likert-type scale, ranging from strong agreement to strong disagreement. Typical statements include: "agriculture is the most basic occupation in our society, and almost all other occupations depend on it; farming involves understanding and working with nature, therefore, it is a much more satisfying occupation than others; and farming is an occupation where farmers can make their economic decisions

independently." The six items have an overall mean of 22.96 (possible range, 6 - 30) and a standard deviation of 3.61. In the data the items are represented by the variables PAGSOC1 to PAGSOC6 (for a list of the items see Question 8(a-f) in Parents' questionnaire, Appendix A). Two factors were extracted from these six items. The first three variables (PAGSOC1 to PAGSOC3) formed the first factor. It accounts for 67.7 percent of the variability. The second factor accounted for the remainder, 32.3 percent of the variance. The six items tested for reliability, yielding a standardized item alpha coefficient of 0.5983.

The third exogenous latent variable is Son's Exposure to Non-farm Occupations and Environments. It is computed by using three variables, labeled EXPOSURE, TOUTIA and TOUTUSA (Question 1 in Parents' questionnaire and questions 14 and 16 in Son's questionnaire, Appendix A) in the data set. EXPOSURE, in turn, is computed variables CHDMOC1 to CHDMOC10,and CHDOSP1 to CHDOSP10. The first ten variables measure the rank order of the occupations of ten (if applicable) children in the family. The next ten variables measure the rank order of the occupation of spouses of the ten (if applicable) children in the family. The occupations are ranked from high to low with a total of nine ranks. The highest ranked occupations fall under the category of Professional and Technical. The lowest ranked occupations fall under the category of general laborers. These nine categories are collapsed into three categories for purposes of this study. Occupations of both children and their spouses are taken into consideration. The first category consists only the highest ranked occupations (Professional and Technical). It has been given a value of 3 and labeled "High Exposure". The second category

consists of occupations that fall under managers, officials, and proprietors. It has been given a value of 2 and labeled "Medium exposure." Finally the third category consists of the rest of the former categories including the farmers. It has been given the value of 1 and labeled "Low Exposure". TOUTIA is a dichotomous variable measuring if student has traveled outside of Iowa. TOUTUSA is a dichotomous variable measuring if the student has travelled outside of the U.S.A.

The fourth exogenous latent variable is called Son's Commitment to Agriculture. This is a scale consisting of five attitudinal items. All five items come from the same set of items, described earlier, used to measure parents agrarianism. The five items have an overall mean value of 18.94 (possible range, 5 - 25) and a standard deviation of 3.07. In the data they are represented by variables AGSOC1 to AGSOC4, and AGSOC6 (Question 35 (a-d,f) in Son's questionnaire, Appendix A). Two factors were extracted from these five variables. The two variables (AGSOC1 and AGSOC2) formed the first factor. It accounts for 57.6 percent of the variability. The second factor, consisting of the other three variables (AGSOC3, AGSOC4 and AGSOC6), accounted for 42.4 percent of the variance. The five items tested for reliability, yielding a standardized item alpha coefficient of 0.5503.

3.2.2 Endogenous variables

There are three endogenous latent variables in the proposed model. Except for the main dependent variable they are measured by using multiple indicators.

The first endogenous variable is called Opportunities for Land and Farm Inheritance as Perceived by Son. Three variables in the data set are used as indicators for

this latent variable. They are called FARMOPER, FEEL4 and INHERIT (Question 11 in Parents' questionnaire and questions 34 and 36d in Son's questionnaire, Appendix A). The FARMOPER variable is a response by the parent t would you best describe the current condition of your farm operation?" The values range from 1 to 4, with one indicating that the operator is worried about bankruptcy or foreclosure, and 4 indicating a prosperous operation. The variable FEEL4, is the son's perception of the financial condition of his parents' farm operation. The values range from 1 to 5 with one indicating a very serious problem and 5 indicating no problem at all. The variable INHERIT is a dichotomous variable measuring the son's prospect of eventually inheriting farm land from his parents.

The second endogenous variable is called the Son's Assessment of the Farm Crisis. It is an additive scale consisting of six attitudinal items. A crucial variable in the structural model to be tested is the variable that measures the students' assessment of the farm crisis. These six items are designed to account for the students' perception of the impact of the farm crisis. The students were asked to respond to a set of six statements closely related to the present and future impacts of the farm crisis. The major objective was to find out if they were optimistic or pessimistic about the future of farming, and American agriculture in general. The responses were arrayed on a five point Likert type scale, ranging from a strong agreement to strong disagreement with each of the six statements. Representative statements included: "the opportunity for young people to enter farming will be strong for the remainder of this decade; the farm crisis has finally started to disappear; and in the next 10-20 years, the Iowa farm economy will be thriving." The six items have

an overall mean value of 17.17 (possible range, 6 - 30) and a standard deviation of 3.72. In the data the items are represented by the variables FUTURE12, FARMOP2, FARMOP5, FARMOP6, FARMOP17 and FARMOP19 (Questions 37m and 39(b,e,f,q,s) in Son's questionnaire, Appendix A). These six items formed a single factor. The items tested for reliability yielding a standardized item alpha coefficient of 0.7240.

The last endogenous variable is the main dependent variable of this study. There are two separate measures of the main dependent variable, IINDEX, and RINDEX. They represent a set of career choices used once for measuring the idealistic and realistic versions of the respondents career aspiration, respectively. The set of career choices consist of five carefully chosen career options that are believed to lie on a linear continuum with two polemic extremes. The first extreme point on the continuum represents a full-time farming career, whereas the other extreme point represents a non-farm non-agricultural career. The choices in between represent careers that are related to the two extremes in matter of degree. For instance, the choice closest to full-time farming is part-time farming and the choice preceding the non-farm non-agricultural option is non-farm, but remaining in agriculture. The middle choice represents a career path where respondents plan to work off-farm upon graduation, but return to farming later on. The first set of career choices, idealistic in nature, is transformed into a dependent variable IINDEX. The second set of career choices, realistic in nature, is transformed into a dependent variable RINDEX. Further computational details and theoretical interpretations of these variables are discussed in the following paragraphs.

The variable IINDEX is an index computed from five variables in the data set, called IFULTIME (full-time farming career), IPARTIME (part-time farming career), IOFFFARM (initially off-farm occupation, return to farming later), INONFARA (non-farm agricultural career) and INONFANA (non-farm non-agricultural career) (Question 41 in Son's questionnaire, Appendix A). The value of IINDEX is a sum of the weighted responses on each of the five variables. The responses of each variable is multiplied by a -2, -1, 0, 1 and 2 respectively. Then they are summed to form the final value of the IINDEX variable. The result yields a range of -10 to 10. A value -10 represents total incongruency of the student's response with the theoretical ranking. Theoretical ranking involves ranking the careers in the following order; IFULTIME as one, IPARTIME as two, IOFFFARM as three, INONFARA as four and INONFANA as five. A value of 10 on the other hand represents complete congruence with the theoretical ranking. The variable IINDEX has a mean value of -0.945 and a standard deviation of 7.416. Sixteen percent of the respondents scored -10 while 12.1 percent scored 10 on the variable. A similar transformation was conducted for the RINDEX variable. The variables RFULTIME, RPARTIME, ROFFFARM, RNONFARA and RNONFANA (Question 42 in Son's questionnaire, Appendix A),were used. The variable RINDEX has a mean value of -3.712 and a standard deviation of 6.464. Twenty-two percent of the respondents scored -10 while 4.1 percent scored 10 on the variable.

3.3 Statistical Analyses

The major statistical analysis, using the SPSSx computer program, involves estimation of the path coefficients for the path models tested. This objective was accomplished by using the computer program, LISREL. LISREL estimates path coefficients combining both measurement and a structural equation model.

3.3.1 Path analysis

Path analysis is a statistical method that allows testing the validity of a theory about causal relationships between multiple variables. It can be used to test theories about hypothesized causal links between variables. According to Borg and Gall (1983), there are three basic steps one needs to consider before carrying out a path analysis. The first step involves the formulation of a theory or theories that link the variables of interest. The second step involves developing "theoretical constructs" by selecting or developing measures of the variables specified by the theory. This is an important step because the validity of a path analysis is only as good as its measures. The final step involves the computation of the statistics that show the strength of the relationship between each of the variables that are causally linked in the theory. This step also involves interpretation of the statistics to discover if the data support or disconfirm the theory.

Path analysis is one form of structural equation model. Structural equation models have been found to be useful in the social and behavioral sciences. These models, referred to as simultaneous equation systems, linear causal analysis, path analysis, and structural equation models, are used to specify the phenomenon under

study in terms of putative cause. These models do not, in general, coincide with regression coefficients among observed variables because each equation in the model represents a causal link rather than a mere empirical association. The variables in the equation system may be either directly observed variables or measured latent variables (hypothetical construct variables). Measured latent variables are not observed but related to observed variables. In this study all but one of the structural variables are measured latent variables.

The path analysis model used in this study can also be described as a covariance structure model. A covariance structure model is a combination of a measurement and a structural equation model. Since the latent variables are unobserved, the parameters of the model must be estimated by the links between the variances and the covariances of the observed variables and the parameters of the model. Confirmatory factor analysis (CFA) model is used to relate observed variables to factors, with the intention of specifying a set of structural relations among these factors. Thus, the covariance structural model is a structural equation model causally relating the latent variables that have been factored from observed variables through a measurement model.

The structural component of the covariance structure model consists of a structural equation model of the form:

$$\eta = \beta\eta + \Gamma\xi + \zeta \tag{3.1}$$

where η is a (r x 1) vector of latent, endogenous variables; ξ is a (s x 1) vector of

latent, exogenous variables; ζ is a (r x 1) vector of errors in equations; β is a (r x r) matrix of coefficients relating the endogenous variables to one another; and Γ is a (r x s) matrix of coefficients relating the exogenous variables to the endogenous variables.

Equation 1 can be written alternatively as:

$$\ddot{\beta}\eta = \Gamma\xi + \zeta$$

where $\ddot{\beta}$ is defined as $(I - \beta)$.

There are three assumptions to be considered. First, the variables are measured as deviations from their means:

$$E(\eta) = E(\zeta) = 0 \text{ and } E(\xi) = 0.$$

Second, there are no redundant equations and:

$$(I - \beta)^{-1} = \ddot{\beta}^{-1} \text{ exists.}$$

Third, the errors in equations and the exogenous variables are uncorrelated:

$$E(\xi\zeta') = 0 \text{ or equivalently, } E(\zeta\xi') = 0.$$

The covariance matrix for the exogenous variables is :

$$\Phi = E(\xi\xi')$$

The covariance matrix for the errors in the equations is a symmetric, not necessarily diagonal matrix:

$$\Psi = E(\zeta\zeta')$$

The covariance matrix for the endogenous variables is :

$$COV(\eta) = E(\eta\eta') = \ddot{\beta}^{-1}(\Gamma\Phi\Gamma' + \Psi)\ddot{\beta}^{-1}$$

The η and ξs are not required to be observed variables, although some of them may be observed. Rather, they are related to the observed variables x and y by a pair of confirmatory factor models :

$$x = \Lambda_x \xi + \delta \tag{3.2}$$

$$y = \Lambda_y \eta + \epsilon \tag{3.3}$$

where x is a (q x 1) vector of observed exogenous variables; y is a (p x 1) vector of observed endogenous variables; Λ_x is a (q x s) matrix of loadings of the observed x-variables on the latent ξ-variables; Λ_y is a (p x r) matrix of loadings of the observed y-variables on the latent η-variables; δ of dimensions (q x 1) and ϵ of dimensions (p x 1) are vectors of unique factors.

Within each factor model, the unique factors may be correlated. That is,

$$COV(\delta) = E(\delta\delta') = \theta_\delta \text{ and } COV(\epsilon) = E(\epsilon\epsilon') = \theta_\epsilon$$

are symmetric, but not necessarily diagonal.

Common factors are assumed to be uncorrelated with unique factors, both within equations: $E(\xi\delta') = 0$ or $E(\delta\xi') = 0$, and $E(\eta\epsilon') = 0$ or $E(\epsilon\eta') = 0$; and across equations: $E(\xi\epsilon') = 0$ or $E(\epsilon\xi') = 0$, and $E(\eta\delta') = 0$ or $E(\delta\eta') = 0$.

Finally, it is assumed that the δ's, ϵ's, and ζ's are mutually uncorrelated :

$$E(\delta\epsilon') = 0 \text{ or } E(\epsilon\delta') = 0;\ E(\delta\zeta') = 0 \text{ or } E(\zeta\delta') = 0;$$
$$\text{and } E(\epsilon\zeta') = 0 \text{ or } E(\zeta\epsilon') = 0.$$

3.3.2 The Covariance structure

Since the variables are measured from their means, the covariance matrix for the observed variables can be defined as:

$$\sum = E\left[\left[\frac{y}{x}\right]\left[\frac{y}{x}\right]'\right] = E\left[\frac{yy'|yx'}{xy'|xx'}\right]$$

where $[\frac{y}{x}]$ is the ((p+q) x 1) vector formed by putting y on top of x.

Substituting equations 2 and 3 for x and y results in:

$$\sum = E\left[\frac{(\Lambda_y\eta + \epsilon)(\Lambda_y\eta + \epsilon)'}{(\Lambda_x + \xi + \delta)(\Lambda_y\eta + \epsilon)'}\middle|\frac{(\Lambda_y\eta\xi' + \Lambda_{x'} + \epsilon\delta)'}{(\Lambda_x\xi + \delta)(\Lambda_x\xi + \delta)'}\right]$$

Upon multiplying:

$$\sum = E\left[\begin{array}{c|c} \Lambda_y\eta\eta'\Lambda_{y'} + \epsilon\epsilon' + \Lambda_y\eta\epsilon + \epsilon\eta'\Lambda_{y'} & \Lambda_y\eta\xi'\Lambda_{x'} + \epsilon\delta' + \Lambda_y\eta\delta' + \epsilon\xi'\Lambda x' \\ \hline \Lambda_x\xi\eta'\Lambda_{y'} + \delta\epsilon' + \Lambda_x\xi\epsilon' + \delta\eta'\Lambda_{y'} & \Lambda_x\xi\xi'\Lambda_{x'} + \delta\delta' + \Lambda_x\xi\delta' + \delta\xi'\Lambda_{x'} \end{array}\right]$$

By distributing the expectation operator, making use of the assumed zero covariance among variables, the following result is obtained:

$$\sum = \left[\begin{array}{c|c} \Lambda_y\ddot{\beta}^{-1}(\Gamma\Phi\Gamma' + \Psi)\ddot{\beta}'^{-1}\Lambda_{y'} + \Theta\epsilon & \Lambda_y\ddot{\beta}^{-1}\Gamma\Phi\Lambda_{x'} \\ \hline \Lambda_x\Phi\Gamma'\ddot{\beta}'^{-1}\Lambda_{y'} & \Lambda_x\Phi\Lambda_{x'} + \Theta_\delta \end{array}\right] \tag{3.4}$$

Before the parameters of the model are estimated, it must be demonstrated that the model is identified. If this is not true, then an infinite number of parameters could generate the observed data. Once identification has been established, the covariance structure model can be estimated by any of the full information methods: unweighted least squares (ULS), generalized least squares (GLS), and maximum likelihood (ML). Estimates are those values of the parameter that minimize the difference between the observed covariance matrix S and the predicted covariance matrix $\hat{\sum}$, where the definition of the difference between the two matrices is determined by the method of estimation. The LISREL computer program is used to estimate and assess the fit of the model to the sample data.

3.4 LISREL Set up of the Models

There are several computer programs for estimating the parameters of structural equation models. LISREL (Linear Structural Relationship) is one of them, introduced by Karl G. Joreskog (Joreskog, 1983). LISREL, version VI, was used to estimate the parameters of the models in this study.

Eight parameter matrices need to be considered in LISREL analysis. They are, 1) LAMBDA-Y (Λ_y) - loadings of the indicators of the endogenous variables on the latent endogenous variables. 2) LAMBDA-x (Λ_x) - loadings of the indicators of the exogenous variables on the latent exogenous variables. 3) BETA (β) - coefficients of the effects of the latent endogenous variables on each other. 4) GAMMA (Γ) - coefficients of the effects of the latent exogenous variables on the latent endogenous variables. 5) PHI (Φ) - variance-covariance matrix of the latent exogenous variables. 6) PSI (Ψ) - variance-covariance matrix of the residuals. 7) THETA-EPSILON (Θ_ϵ) - variance-covariance matrix of measurement errors associated with the y's. 8) THETA-DELTA (Θ_δ) - variance-covariance matrix of measurement errors associated with the x's.

Figure 1 represents the basic model to be tested. The left side of the figure lists the four latent exogenous variables. They are called the xi variables. All of them are measured by multiple indicators called the x-variables. One of the measures of lambda x's for all of the exogenous (and endogenous) variables is set to 1.0 to indicate the metric of the latent variable. The indicator variable with the 1.0 is called the reference variable of that particular latent variable. The rest of the indicators are freed to be estimated. The measurement error associated with each

of the x variables is represented by delta.

There are three endogenous latent variables in this basic model. The lambda y's represent the estimates of the indicators on their respective latent variable. The error associated with each y-variable is called epsilon. The epsilon associated with the main dependent variable is set to zero, because it is a one indicator variable assumed to measure the latent variable without any error.

The structural component of the model indicates the relationships between the exogenous and the endogenous and between the endogenous and endogenous variables. These relationships are represented by single-headed arrows. The magnitudes and the directions of the relationships between the exogenous and the endogenous variables are indicated by the gamma coefficients. The magnitudes and directions of the relationships between the endogenous variables are indicated by the beta coefficients. The residual of each of the endogenous variable is represented by zeta.

The measurement model for the exogenous latent variables is represented by the following matrix:

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \\ x_6 \\ x_7 \\ x_8 \\ x_9 \\ x_{10} \\ x_{11} \\ x_{12} \\ x_{13} \\ x_{14} \\ x_{15} \\ x_{16} \\ x_{17} \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \delta_{2,1} & 0 & 0 & 0 \\ \delta_{3,1} & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & \delta_{5,2} & 0 & 0 \\ 0 & \delta_{6,2} & 0 & 0 \\ 0 & \delta_{7,2} & 0 & 0 \\ 0 & \delta_{8,2} & 0 & 0 \\ 0 & \delta_{9,2} & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & \delta_{11,3} & 0 \\ 0 & 0 & \delta_{12,3} & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & \delta_{14,4} \\ 0 & 0 & 0 & \delta_{15,4} \\ 0 & 0 & 0 & \delta_{16,4} \\ 0 & 0 & 0 & \delta_{17,4} \end{bmatrix} \begin{bmatrix} \xi_1 \\ \xi_2 \\ \xi_3 \\ \xi_4 \end{bmatrix} + \begin{bmatrix} \delta_1 \\ \delta_2 \\ \delta_3 \\ \delta_4 \\ \delta_5 \\ \delta_6 \\ \delta_7 \\ \delta_8 \\ \delta_9 \\ \delta_{10} \\ \delta_{11} \\ \delta_{12} \\ \delta_{13} \\ \delta_{14} \\ \delta_{15} \\ \delta_{16} \\ \delta_{17} \end{bmatrix}$$

This matrix solves the following equations for the x's:

$$
\begin{aligned}
x_1 &= \xi_1 + \delta_1 \\
x_2 &= \lambda_{2,1}\xi_1 + \delta_2 \\
x_3 &= \lambda_{3,1}\xi_1 + \delta_3 \\
x_4 &= \xi_2 + \delta_4 \\
x_5 &= \lambda_{5,2}\xi_2 + \delta_5 \\
x_6 &= \lambda_{6,2}\xi_2 + \delta_6 \\
x_7 &= \lambda_{7,2}\xi_2 + \delta_7 \\
x_8 &= \lambda_{8,2}\xi_2 + \delta_8 \\
x_9 &= \lambda_{9,2}\xi_2 + \delta_9 \\
x_{10} &= \xi_3 + \delta_{10} \\
x_{11} &= \lambda_{11,3}\xi_3 + \delta_{11} \\
x_{12} &= \lambda_{12,3}\xi_3 + \delta_{12} \\
x_{13} &= \xi_4 + \delta_{13} \\
x_{14} &= \lambda_{14,4}\xi_4 + \delta_{14} \\
x_{15} &= \lambda_{15,4}\xi_4 + \delta_{15} \\
x_{16} &= \lambda_{16,4}\xi_4 + \delta_{16} \\
x_{17} &= \lambda_{17,4}\xi_4 + \delta_{17}
\end{aligned}
$$

The measurement model for the endogenous latent variables is represented by the following matrix:

$$
\begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \\ y_5 \\ y_6 \\ y_7 \\ y_8 \\ y_9 \\ y_{10} \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ \delta_{2,1} & 0 & 0 \\ \delta_{3,1} & 0 & 0 \\ 0 & 1 & 0 \\ 0 & \delta_{5,2} & 0 \\ 0 & \delta_{6,2} & 0 \\ 0 & \delta_{7,2} & 0 \\ 0 & \delta_{8,2} & 0 \\ 0 & \delta_{9,2} & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \\ \eta_3 \end{bmatrix} + \begin{bmatrix} \epsilon_1 \\ \epsilon_2 \\ \epsilon_3 \\ \epsilon_4 \\ \epsilon_5 \\ \epsilon_6 \\ \epsilon_7 \\ \epsilon_8 \\ \epsilon_9 \\ \epsilon_{10} \end{bmatrix}
$$

This matrix solves the following equations for the y's:

$$\begin{aligned}
y_1 &= \eta_1 + \epsilon_1 \\
y_2 &= \lambda_{2,1}\eta_1 + \epsilon_2 \\
y_3 &= \lambda_{3,1}\eta_1 + \epsilon_3 \\
y_4 &= \eta_2 + \epsilon_4 \\
y_5 &= \lambda_{5,2}\eta_2 + \epsilon_5 \\
y_6 &= \lambda_{6,2}\eta_2 + \epsilon_6 \\
y_7 &= \lambda_{7,2}\eta_2 + \epsilon_7 \\
y_8 &= \lambda_{8,2}\eta_2 + \epsilon_8 \\
y_9 &= \lambda_{9,2}\eta_2 + \epsilon_9 \\
y_{10} &= \eta_3 + \epsilon_{10}
\end{aligned}$$

The overall structural model is represented by the following matrix:

$$\begin{bmatrix} \eta_1 \\ \eta_2 \\ \eta_3 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 \\ \beta_{2,1} & 0 & 0 \\ \beta_{3,1} & \beta_{3,2} & 0 \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \\ \eta_3 \end{bmatrix} + \begin{bmatrix} \gamma_{1,1} & \gamma_{1,2} & \gamma_{1,3} & \gamma_{1,4} \\ \gamma_{2,1} & \gamma_{2,2} & \gamma_{2,3} & \gamma_{2,4} \\ \gamma_{3,1} & \gamma_{3,2} & \gamma_{3,3} & \gamma_{3,4} \end{bmatrix} \begin{bmatrix} \xi_1 \\ \xi_2 \\ \xi_3 \\ \xi_4 \end{bmatrix} + \begin{bmatrix} \zeta_1 \\ \zeta_2 \\ \zeta_3 \end{bmatrix}$$

This matrix solves the following structural equations for the latent endogenous variables:

$$\eta_1 = \gamma_{1,1}\xi_1 + \zeta_1 \tag{3.5}$$

$$\eta_2 = \beta_{2,1}\eta_1 + \gamma_{2,1}\xi_1 + \gamma_{2,2}\xi_2 + \gamma_{2,3}\xi_3 + \gamma_{2,4}\xi_4 + \zeta_2 \tag{3.6}$$

$$\eta_3 = \beta_{3,1}\eta_1 + \beta_{3,2}\eta_2 + \gamma_{3,1}\xi_1 + \gamma_{3,2}\xi_2 + \gamma_{3,3}\xi_3 + \gamma_{3,4}\xi_4 + \zeta_3 \tag{3.7}$$

The phi variance-covariances is represented by the following matrix:

$$\Phi = \begin{bmatrix} 0 & & & \\ \Phi_{2,1} & 0 & & \\ \Phi_{3,1} & \Phi_{3,2} & 0 & \\ \Phi_{4,1} & \Phi_{4,2} & \Phi_{4,3} & 0 \end{bmatrix}$$

The psi variance-covariances is represented by the following diagonal matrix:

$$\Psi = \begin{bmatrix} \Psi_{1,1} & & \\ 0 & \Psi_{2,2} & \\ 0 & 0 & \Psi_{3,3} \end{bmatrix}$$

The theta delta variance-covariances is represented by the following diagonal matrix:

$$\Theta_\delta = \begin{bmatrix} 0 & & & & & & & & & \\ & \theta\delta_{2,2} & & & & & & & & \\ & & \theta\delta_{3,3} & & & & & & & \\ & & & \theta\delta_{4,4} & & & & & & \\ & & & & \ddots & & & & & \\ & & & & & \theta\delta_{13,13} & & & & \\ & & & & & & \theta\delta_{14,14} & & & \\ & & & & & & & \theta\delta_{15,15} & & \\ & & & & & & & & \theta\delta_{16,16} & \\ & & & & & & & & & 0 \end{bmatrix}$$

The theta epsilon variance-covariances is represented by the following diagonal matrix:

$$\Theta_\epsilon = \begin{bmatrix} 0 & & & & & & & & \\ & \theta\epsilon_{2,2} & & & & & & & \\ & & \theta\epsilon_{3,3} & & & & & & \\ & & & \theta\epsilon_{4,4} & & & & & \\ & & & & \theta\epsilon_{5,5} & & & & \\ & & & & & \theta\epsilon_{6,6} & & & \\ & & & & & & \theta\epsilon_{7,7} & & \\ & & & & & & & \theta\epsilon_{8,8} & \\ & & & & & & & & \theta\epsilon_{9,9} \\ & & & & & & & & 0 \end{bmatrix}$$

The measurement error associated with element $y_{10,3}$ of the theta epsilon matrix is set to zero because this is assumed to perfectly measure the main dependent variable. The following assumptions are made with regard to the estimation of the model. First, the errors (zetas) associated with the latent endogenous variables are uncorrelated with latent independent variables (xi's). Second, the measurement errors associated with the indicators (y's) of the endogenous variables are uncorrelated with the latent endogenous variables (etas). Third, the measurement errors associated with the indicators (x's) of the exogenous variables are uncorrelated with the latent exogenous variables (xi's). Fourth, the error terms associated with the latent endogenous variables (zetas), indicators (y's) of the latent endogenous variables (epsilons), and indicator's (x's) of the latent exogenous variables (deltas) are mutually uncorrelated (Joreskog and Sorbom, 1986).

The LISREL program allows the option of replacing a variance-covariance input matrix with a correlation matrix. This matrix can either be typed in by the user

or if the raw data is provided the program estimates it on its own. For this study the raw data was provided to allow LISREL to analyze a correlation input matrix.

The LISREL program allows the user many output options. The outputs include the log of the read control card, the parameter specifications, the matrix to be analyzed, the initial estimates, the LISREL estimates (ML and ULS) and the overall goodness of fit measures. One could ask for standard errors, t-values, $\hat{\sum}$, residuals $S - \hat{\sum}$, normalized residuals and Q-plot, total effects, correlations of estimates, modification indices, factor scores regression, and standardized solution. For this study all of these outputs were requested and utilized.

LISREL allows assessment of the fit of the model to sample data at two levels. On the first level it is suggested that one closely examine the results for the measurement model, i.e., the parameters for measuring the latent variables with multiple indicators and the structural equation parameter. Joreskog and Sorbom (1986) suggests paying attention to the five following coefficients. They are 1) parameter estimates, 2) standard errors (for ML only), 3) squared multiple correlations, 4) coefficients of determination, and 5) correlations of parameter estimates (for ML only). The second level of assessment is associated with evaluation of the overall fit of the model to the data. No single diagnostic tool is sufficient to achieve such a goal. Some of the measures of overall fit are, 1) a chi-square measure with its associated degrees of freedom and probability level (for ML only), 2) goodness-of-fit index (GFI), 3) adjusted goodness-of-fit index (AGFI), 4) root mean square residual (RMR), and 5) Hoelter's Critical N (CN).

The squared multiple correlation is a measure of the strength of the relationship

between the observed indicator variables and the latent variables separately. In other words, it measures the reliability of the observed variables for the latent variables. The coefficients are between zero and one. A large value is associated with a good model.

The total coefficient for x-variables and for the structural equations are the measures of the strength of several relationships jointly. A high value of TCD for x-variables and the structural equation indicates a high reliability of measures for the indicators and a strong joint relationships among the structural equations respectively.

To examine the measures that evaluate the overall fit of the model to the data several diagnostics can be employed. According to Joreskog and Sorbom, chi-square

> "is N-1 times the minimum value of the fitting function for the specified model. If the model is correct and the sample size sufficiently large, the χ^2 measure is the likelihood ratio test statistic for testing the model against the alternative that $\sum$ is unconstrained" (Joreskog and Sorbom 1986:I.38).

They go on to add that,

> "instead of regarding χ^2 as a test statistic one should regard it as a goodness (or badness) of fit measure in the sense that large χ^2 values correspond to bad fit and small χ^2 values to good fit. The degrees of freedom serve as a standard by which to judge whether χ^2 is large or small" (Joreskog and Sorbom, 1986:I.39).

A chi-square relative fit value may be computed by dividing the chi-square value by the degrees of freedom (Wheaton et al. 1977). This statistic takes sample size into consideration in assessing goodness of fit. Wheaton suggests a ratio of approximately five or less "as beginning to be reasonable." Carmines and Mc Iver

(1981) suggest from their experience, that a relative fit score of 2 or 3 is an indication of an acceptable fit between the hypothetical model and the sample data.

Since the chi-square measure is sensitive to sample size and departures from multivariate normality of the observed variables, other alternative measures are suggested by statisticians to assess the fit of a model to the data. One such measure is the computation of Critical N, using the following formula suggested by Hoelter (1983):

$$CN = \frac{(Z_{crit} + \sqrt{2df - 1})^2}{2\chi^2/N - G} + G$$

where Z_{crit} is the critical value of the normal distribution for a selected probability level; df refers to the degrees of freedom; χ^2 is the chi-square value associated with the model; N is the sample size ; and G is the number of groups analyzed simultaneously.

A value of 200 (G) or more is suggestive of a good fit model. That is there is an adequate fit between the proposed model and the observed data in the analysis.

A fit of the model can be often improved by freeing up the constraints in the model. LISREL allows the user to request modification of the model estimation by freeing up constraints. It provides modification indices represented by values for those elements in the model that when freed should decrease the chi-square value by that amount with a corresponding one degree of freedom loss. This procedure was used for estimating the models for this study.

4 FINDINGS

This chapter is divided into two major sections. The first section presents a few selected descriptive statistics to sketch the background for what follows in part two, namely, the statistical testing of the proposed path models.

4.1 Descriptive Statistics - Background Characteristics

The population of the study was comprised of all male Iowa State University undergraduate students with a farm background. The list of actively enrolled students of the above mentioned population was used to select a sample of 1200 male students with rural route home addresses. A set of two questionnaires was prepared for this study. The first questionnaire was designed to record responses of the students regarding their attitudes, beliefs, assessments of the farm crisis, and career plans along with other attributional information. The second questionnaire was designed for the parents of each student and was aimed at obtaining first-hand financial information on their farm operations, along with their opinions and attitudes toward the farm economic crisis. The overall response rate was sixty-two percent (this figure includes those who returned questionnaires indicating that they were not farmers or farmer's sons). Out of the possible total of 1200 pairs, 456 (38 percent) parents and sons returned their questionnaires and comprise the final

sample of this study.

The average age for students in the sample is 21 years. About 44 percent of the students are enrolled in the College of Agriculture, with another 25 percent matriculating in the College of Engineering. Some 14 and 11 percent of the sample reported being in the College of Science and Humanities and the College of Business Administration, respectively.

One-third of the students in the sample are seniors, 26 percent juniors, 22 percent sophomores and 18 percent freshmen. The fact that a larger share of the sample comes from the higher class levels is a reflection of the continuous downward trend in enrollment figures in the College of Agriculture over the past several years. One-third of the students in the sample have changed their major at least once. Twenty percent stated that they intend to continue their education after obtaining their Bachelors degree.

Since the current condition of the respondents' farm operations is a critical feature of the proposed model, descriptive statistics will also be presented for the respondents' families and business enterprises. The average age of the farm husband and wife is 51 and 48 years, respectively. Husbands have an average of 12.5 years of schooling, while the wives report an average of 13 years of schooling.

The average 1986 farm size was 458 acres. Of the total acres operated, 235 acres are owned and 219 acres rented. The 1987 market value of farm assets ranged from 0 to $3,000,000, with an average of $370,352. Only 4 percent of the farmers reported that their 1986 net farm income was $60,000 and above, while about 24 percent reported earning $15,000 or less for that same period.

Only 31 percent of the farmers reported that farming was their sole source of income over the last three years. One-third of the farmers held an off-farm job, reporting an average of 37 hours per week. Forty-eight percent indicated that their spouses held off-farm jobs, averaging 31 hours of off-farm work per week.

It may also be of interest to note the place of influentials in the process of career aspiration formation. Both the parents and their sons were asked to respond to a question on career influences. Parents perceived that both the father (30 percent) and mother (27 percent) had significant influence on their son's career choice. In addition, fifteen percent of the parents thought that college advisers had a substantial role in influencing the career aspiration of their son while only seven percent thought that the son's friends had a strong influence on their son's career choice.

Students' response to the question on career influence reveals results that are quite different from their parents' responses. Only 3 percent of the students reported that their parents had had an influence on their career decision. On the other hand, fifty-four percent mentioned close friends and another forty-two percent mentioned their college adviser. Also mentioned as prominent factors were course work (51 percent), professionals in their area of specialization (44 percent), and college professors (29 percent).

Students' involvements in organizations is a good indication of their exposure to the outside world. The number and the type of organizations students participate in can have a great impact on their future plans. The student respondents, were asked to list the names of the organizations they were involved in in the preceding

year. Seventy two percent of the sample reported that they were involved in at least one organization. Thirty-eight percent of the students said that they were involved in organizations that were professional in nature. Others reported being involved in hobby or recreational clubs. The students were also asked to list the names of the organizations on campus that they were currently involved in. Sixty-five percent reported belonging to at least one campus organization.

4.2 Descriptive Statistics - Career Aspirations

More than half of the students reported that the farm crisis had affected their educational plans to at least some extent. Fifty-six percent of the students reported that the farm crisis had affected their future career plans. However, fifty-five percent disagreed with the suggestion that few farm opportunities exist today. Similarly, 54 percent expressed hope for a promising future in agriculture. Forty percent agreed that they would choose farming as a profession if they had a choice. Sixteen percent stated that they would have gone directly into farming instead of first coming to college had the farming situation been better.

The major dependent variable in this analysis deals with the student's decision to enter farming versus other general career choices. The respondents were asked to indicate their "ideal" career choice and the career choice that they "realistically" felt that they would achieve. Given the opportunity to list their "ideal" occupational choice, 24 percent of the students would chose to enter full-time farming directly after college. Six percent ranked farming part-time after graduation as their ideal choice. Some 22 percent ranked choosing an off-farm career after graduation and

then returning to farming later on as their ideal career path. Seventeen percent stated their preference for a non-farm agricultural career after graduation and 34 percent would, in an ideal situation, choose a non-farm non-agricultural career after graduation from college.

Queried about their "realistic" career alternatives, a different pattern from that reported above emerges. For example, only 7 percent expected that they would actually enter full-time farming upon graduation. Another 5 percent stated that they would probably enter part-time farming after school. About 22 percent expected to pursue an off-farm career, but return to farming later on. Similarly, 23 percent expected to pursue a non-farm agricultural career. But 46 percent realistically expected to pursue a non-farm non-agricultural career after graduating from college.

Parents' advice about educational and occupational planning has been shown to be an influential factor in their children's decision making. Parents' responses to what they would say to a young person seeking advice about entering farming shows that only 7 percent of the parents said they would unconditionally recommend that a young person enter farming if he wants to. Forty-four percent of the parents were willing to give similar advice only if the young person was fully aware of the current economic situation and was fully committed to farming. Twenty-six percent suggested forgetting farming altogether and another 19 percent said they would suggest going into farming only if the young entrant had strong financial backing. About four percent chose not to respond to this question.

The following section reports on the tests of the hypotheses using the LISREL model. Bivariate relationships between the variables in the model are presented in

Appendix B.

4.3 Results From the LISREL Analyses of the Path Models

This part of the chapter reports the estimated coefficients of the path models. Two sets of models are presented. The first set consists of two models, basically the same in design except for the main dependent variables. The dependent variable in the first model (Model 1) is called IINDEX. It is an index variable Measuring the respondents' ideal career choices. The dependent variable in the second model (Model 2) is called RINDEX. It is an index variable measuring the respondents' realistic career choices. A detailed description of the two variables appear in Chapter 3. The second set of models consists of the two modified versions of Model 1 and Model 2. They are represented in the study as Model 3.1 and Model 3.2. For all four models the LISREL computer program was used to obtain the results.

As noted in Chapter 3, the dependent variable used in this study was meant to measure the respondent's degree of commitment to farming as an occupational goal. Respondents were given a set of five occupational choice statements which ranged from an item which indicated a high degree of commitment to an agricultural career (entering a farming directly upon graduation) to one which indicated no commitment to pursuing an agricultural career (entering non-agricultural occupation upon graduation). The three intermediate choices were items that emphasized varying levels of commitment, ranging from the pursuit of part-time farming to entering a non-farm occupation and returning to farming later in life to entering a career in agriculture, but not in farming (e.g., in agribusiness or government service).

A recognition of the changing opportunity structure in farming and the impact of recent economic conditions on perception of this structure stimulated us to use a twofold measure of occupational aspiration, one which emphasized an "ideal" choice condition and one which emphasized a "realistic" choice condition. Respondents were given the five occupational choice statements and asked to rank order them under both ideal and realistic conditions. The resulting variables represented the dependent variables in the two initial models tested in the study. Later in this chapter, two revised path models, both of which represent an improved fit with the data will be presented.

Both models in the first set share the same basic design. In both models some changes had to be made before the estimation of the path coefficients. To overcome the issue of theta delta matrix being non-positive definite, the element TE 1 1 was set to zero for both Model 1 and Model 2. Imposition of such constraints on the elements is a recommended solution for problems of this nature encountered with the LISREL computer program (Bentler and Chou, 1987). For Model 1 and Model 2 three theta delta elements were freed up to improve the fit of the models. These particular elements were freed following such indications in the modification indices. For every element freed the model loses one degree of freedom. Freeing up these elements meant allowing for correlation between the corresponding error terms in the measurement models. These changes do not radically alter the theoretical structure of the tested models.

Assessment of the first two models clearly suggested the need for exploring alternate models which might improve the statistical fit. Examination of the LISREL

output indicated the general areas where such changes might be made to improve the model fit. A revised model was formulated. Two versions of it were tested, each representing one of the two dependent variables. There was a substantial improvement in terms of the degree of fit. The revised models are theoretically defensible. In line with the presentation strategy, results of the model with IINDEX as the dependent variable, followed by model with RINDEX as the dependent variable are presented and discussed. The two models of the second set will be labeled as Model 3.1 and Model 3.2. The two models share the basic design with three independent and two dependent variables (Figures 4.3 and 4.4). As suggested by the modification indices, a lambda element was freed up for both models. This brought about a change in the nature of the measurement model. In other words, one variable was contributing in the measurement of another latent variable aside from its original latent variable. This does not radically shift the theoretical import of the model.

The discussion will include results from several diagnostic tests to assess the goodness of fit of the four models. Results of the hypotheses testing will also be included in the discussion.

4.3.1 Model 1

The main dependent variable (η_3) for Model 1, IINDEX (ideal career choice) (Figure 4.1), is an index computed by weighting the five variables of the ideal set of occupational choices. Values range from -10 to +10. A score of -10 indicates that the respondent (student) ranked the non-farm non- agricultural career alternative as his number one choice, the non-farm agriculture career alternative as his second

choice, and so on. A score of 10, on the other hand, indicates ranking full-time farming as his first choice, part-time farming as his second choice, and so on.

Model one (Figure 4.1) is represented by four independent or exogenous ($\xi_1 - \xi_4$) latent variables and three dependent or endogenous ($\eta_1 - \eta_3$) latent variables. The LISREL program estimated fourteen structural equation coefficients that subsequently determined the relationship between the independent and dependent variables in the recursive path model. In Figure 4.1, the paths leading from the exogenous variables to the endogenous variables are represented by gamma coefficients and the paths between the endogenous variables are represented by beta coefficients. All coefficients are standardized maximum-likelihood solutions. Reporting standardized coefficients instead of unscaled solutions does not make interpretation any different. For instance, instead of saying that a unit change in the endogenous variable η_j results in a change of β_{ij} units in η_i, all other variables being held constant, one interprets rather that a standard deviation change in η_j results in a β_{ij} standard deviation change in η_i, all other variables being held constant; a standard deviation change in ξ_j results in a $\gamma_i j$ standard deviation change in η_i, all other variables being held constant. It must be pointed out that the assumption made by these interpretations, is that all other variables are being held constant, in practice, however, such a change in a given exogenous variable is likely to be associated with a change in more than a single other variable (Long, 1983:49).

Model 1 (Figure 4.1) is a fully saturated recursive path model. Permitting all the path coefficients to be estimated allows an overall picture of the simultaneous relationships between the variables.

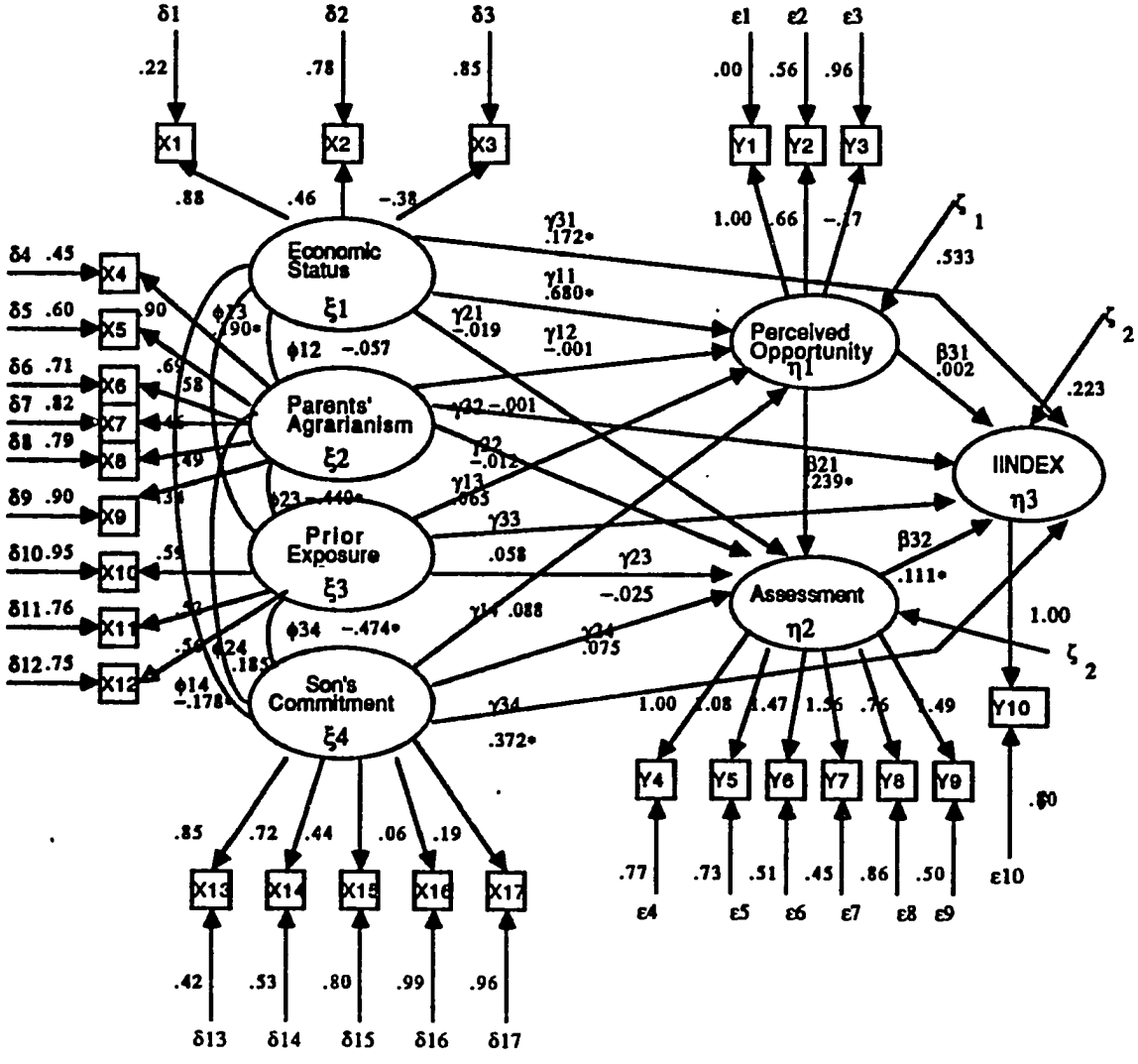


Figure 4.1: LISREL estimates of the coefficients for Model 1 with IINDEX variable as the measure of career aspiration

Results (Table 4.1) show that, out of the four independent latent variables, two have a significant relationship with the main dependent variable, IINDEX. Parents' economic status has a direct, positive, and a significant effect on son's ideal career choice (IINDEX). Thus, the greater the parents' resource base, the greater the tendency for the respondent to list farming as his ideal career choice. This relationship supports hypothesis 1. The indirect effect of parents' economic status on ideal career choice via son's perceived opportunity structure and his assessment of the farm crisis is weak and non-significant (Table 4.2).

The other exogenous variable to show a significant association with son's ideal career choice is his ideological commitment to agriculture. This relationship supports hypothesis 10. The indirect effect of son's ideological commitment to agriculture on ideal career choice, via son's perceived opportunity structure and his assessment of the present farm crisis is weak and non-significant (Table 4.2).

The two intervening variables, opportunity structure as perceived by the son, and the son's assessment of the farm crisis, are crucial to the model. There is a very strong direct, positive and significant effect of economic status on perceived opportunity structure. This indicates that the higher the parents' socio-economic status, the higher the son's perception of the opportunity to pursue a career in agriculture. Neither of the other two variables, parents' agrarianism or son's exposure to nonagricultural environments, showed a significant relationship to perceived opportunity (Figure 4.1).

Table 4.1: Estimates for Model 1 in Figure 4.1

Parameters	Unscaled Solution (ML)			Standardized Solution (ML)
Lambda y1	1.000	*	(0.000)a	1.000
Lambda y2	0.660	**	(0.035)	0.660
Lambda y3	-0.175	**	(0.046)	-0.175
Lambda y4	1.000	*	(0.000)	0.473
Lambda y5	1.087	**	(0.148)	0.514
Lambda y6	1.474	**	(0.170)	0.697
Lambda y7	1.563	**	(0.176)	0.739
Lambda y8	0.765	**	(0.129)	0.362
Lambda y9	1.490	**	(0.171)	0.705
Lambda y10	1.000	*	(0.000)	1.005
Lambda x1	0.880	*	(0.000)	0.880
Lambda x2	0.468	**	(0.050)	0.468
Lambda x3	-0.383	**	(0.050)	-0.383
Lambda x4	0.900	*	(0.000)	0.900
Lambda x5	0.691	**	(0.049)	0.691
Lambda x6	0.589	**	(0.049)	0.589
Lambda x7	0.464	**	(0.051)	0.464
Lambda x8	0.494	**	(0.050)	0.494
Lambda x9	0.344	**	(0.052)	0.344
Lambda x10	0.590	*	(0.000)	0.590
Lambda x11	0.539	**	(0.060)	0.539
Lambda x12	0.560	**	(0.059)	0.560

[a] The Standard errors of the estimates are given in the parentheses.

* Single asterisks denotes parameter values fixed by scaling.

** Double asterisks denote coefficients are statistically significant at 0.05 or less probability level.

Table 4.1: (Continued)

Parameters	Unscaled Solution (ML)			Standardized Solution (ML)
Lambda x13	0.853	*	(0.000)	0.853
Lambda x14	0.723	**	(0.052)	0.728
Lambda x15	0.448	**	(0.050)	0.448
Lambda x16	0.065		(0.054)	0.065
Lambda x17	0.199	**	(0.053)	0.199
Beta 2 1	0.113	**	(0.038)	0.239
Beta 3 1	0.002		(0.070)	0.002
Beta 3 2	0.236	**	(0.112)	0.111
Gamma 1 1	0.680	**	(0.053)	0.680
Gamma 2 1	-0.009		(0.041)	-0.019
Gamma 3 1	0.173	**	(0.077)	0.172
Gamma 1 2	-0.001		(0.053)	-0.001
Gamma 2 2	-0.006		(0.034)	-0.012
Gamma 3 2	-0.001		(0.062)	-0.001
Gamma 1 3	0.065		(0.074)	0.065
Gamma 2 3	-0.012		(0.047)	-0.025
Gamma 3 3	0.058		(0.087)	0.058
Gamma 1 4	0.088		(0.056)	0.088
Gamma 2 4	0.035		(0.036)	0.075
Gamma 3 4	0.374	**	(0.067)	0.372
Phi 1 2	-0.057		(0.059)	-0.057
Phi 2 3	-0.440	**	(0.064)	-0.440
Phi 3 4	-0.474	**	(0.064)	-0.474
Phi 1 3	0.190	**	(0.070)	0.190
Phi 2 4	0.185	**	(0.059)	0.185
Phi 1 4	-0.178	**	(0.059)	-0.178
Psi 1 1	0.535	**	(0.048)	0.535
Psi 2 2	0.211	**	(0.044)	0.944
Psi 3 3	0.852	**	(0.060)	0.844
Theta Epsilon 1 1	0.000		(0.000)	
Theta Epsilon 2 2	0.565	**	(0.037)	
Theta Epsilon 3 3	0.969	**	(0.064)	

Table 4.1: (Continued)

Parameters	Unscaled Solution (ML)		
Theta Epsilon 4 4	0.776	**	(0.056)
Theta Epsilon 5 5	0.736	**	(0.054)
Theta Epsilon 6 6	0.514	**	(0.045)
Theta Epsilon 7 7	0.454	**	(0.044)
Theta Epsilon 8 8	0.869	**	(0.060)
Theta Epsilon 9 9	0.503	**	(0.045)
Theta Epsilon 10 10	0.000		(0.000)
Theta Delta 1 1	0.221	**	(0.048)
Theta Delta 2 2	0.781	**	(0.055)
Theta Delta 3 3	0.853	**	(0.059)
Theta Delta 4 4	0.458	**	(0.053)
Theta Delta 5 5	0.603	**	(0.052)
Theta Delta 6 6	0.713	**	(0.055)
Theta Delta 7 7	0.821	**	(0.059)
Theta Delta 8 8	0.797	**	(0.058)
Theta Delta 9 8	0.334	**	(0.046)
Theta Delta 9 9	0.902	**	(0.062)
Theta Delta 10 10	0.959	**	(0.075)
Theta Delta 11 11	0.760	**	(0.067)
Theta Delta 12 12	0.752	**	(0.068)
Theta Delta 13 13	0.424	**	(0.054)
Theta Delta 14 14	0.531	**	(0.054)
Theta Delta 15 12	-0.273	**	(0.041)
Theta Delta 15 15	0.806	**	(0.057)
Theta Delta 16 15	0.345	**	(0.044)
Theta Delta 16 16	0.996	**	(0.066)
Theta Delta 17 17	0.965	**	(0.065)

Table 4.2: Decomposition of total effects into direct and indirect effects for independent on dependent and dependent on dependent variables in Model 1

Variables		Effects		
Exogenous (Independent)	Endogenous (Dependent)	Total	Direct	Indirect
ECONOMIC STATUS	IINDEX	0.189	0.172	0.017
PARENTS AGRARIANISM	IINDEX	-0.004	-0.001	-0.003
PRIOR EXPOSURE	IINDEX	0.057	0.058	-0.001
SON'S COMMITMENT	IINDEX	0.383	0.372	0.011
	(PERCEIVED OPPORTUNITY STRUCTURE)			
ECONOMIC STATUS	POS	0.680	0.680	
PARENTS AGRARIANISM	POS	-0.001	-0.001	
PRIOR EXPOSURE	POS	0.065	0.065	
SON'S COMMITMENT	POS	0.088	0.088	
ECONOMIC STATUS	ASSESSMENT	0.144	-0.019	0.163
PARENTS AGRARIANISM	ASSESSMENT	-0.012	-0.006	-0.006
PRIOR EXPOSURE	ASSESSMENT	-0.009	-0.025	0.016
SON'S COMMITMENT	ASSESSMENT	0.096	0.075	0.021
Endogenous	Endogenous			
PERCEIVED OPPORTUNITY STRUCTURE	IINDEX	0.029	0.002	0.027
POS	ASSESSMENT	0.239	0.239	
ASSESSMENT	IINDEX	0.111	0.111	

The direct path between parents' socio-economic status and son's assessment of the farm crisis is weak and in the opposite direction of that hypothesized. However, the indirect influence of socio-economic status on assessment of the farm crisis via perceived opportunity structure is significant and in the predicted direction. None of the other exogenous variables, either directly or indirectly, show a significant relationship with the son's assessment of the farm crisis (Table 4.2).

A critical test of the model lies in the relationship between the perceived opportunity structure and the primary dependent variable, son's ideal career choice. As indicated in Table 4.2, the direct effect is virtually non-existent. There is, however, a slight positive indirect effect of the son's perception of the opportunity structure on his ideal career choice via the assessment of the farm crisis variable. The lack of a direct, significant relationship, between the two above mentioned variables, is complemented instead by a direct, positive, and significant relationship between son's assessment of the farm crisis and his ideal career choice.

4.3.2 Assessment of fit of Model 1 to data

Model 1 does not show any unreasonable values in the parameter estimates. Such unreasonable values would include negative variances, correlations which are larger than 1.0 in magnitude, or variance-covariance or correlation matrices which are not positive definite. Model 1 does not have negative squared multiple correlations nor coefficients of determination. The standard errors (Table 4.1) are not extremely large and the estimated parameters do not correlate very highly either (not shown).

The squared multiple correlation (Table 4.3) is a measure of the strength of relationship between the observed indicator variables and the latent variables separately. In other words, it measures the reliability of the observed variables for the latent variables. Coefficients are between zero and one, with a large value associated with a good model.

Out of the nine y-variables measuring the two dependent latent variables, the variable INHERIT with a low squared multiple correlation of 0.031 suggests that it is not a reliable measure for the latent variable, perceived opportunity structure. Out of the seventeen x-variables measuring four independent latent variables, EXPOSURE, an indicator of son's exposure, and AGSOC4 and AGSOC6, two of the indicators of son's ideological commitment to agriculture, have low squared multiple correlation coefficients. The structural equation for the ASSESSMENT variable has the lowest squared multiple correlation coefficient among the three structural equations.

The total coefficient for x-variables and for the structural equations are the measures of the strength of several relationships jointly. A 0.971 TCD (total coefficient of determination) for x-variables indicates strong joint relationships. However, the TCD for structural equations with a coefficient of 0.536 indicates only a modest joint relationship among the structural equations.

The chi-square value obtained for Model 1 is 1969.18 with 306 degrees of freedom and 0.000 probability level. A chi-square relative fit value may be computed by dividing the chi-square value by the degrees of freedom (Wheaton et al., 1977). This statistic takes sample size into consideration in assessing goodness of fit.

Table 4.3: Squared multiple correlation (SMC) for y and x- variables, and structural equation and the total coefficient of determination (TCD) for structural equations in Model 1

Y Variables	SMC	X Variables	SMC	Structural Equations	SMC
FARMOPER	1.000	NETFINC	0.779	PERCEIVED	
FEEL4	0.435	PERFINC	0.219	OPPORTUNITY	
INHERIT	0.031	LEVERAGE	0.147	STRUCTURE	0.465
FUTURE12	0.224	PAGSOC1	0.542	ASSESSMENT	0.056
FARMOP2	0.264	PAGSOC2	0.397	IINDEX	0.156
FARMOP5	0.486	PAGSOC3	0.288		
FARMOP6	0.546	PAGSOC4	0.179		
FAMOP17	0.131	PAGSOC5	0.203		
FAMOP19	0.497	PAGSOC6	0.098		
IINDEX	1.000	EXPOSURE	0.041		
		TOUTIA	0.240		
		TOUTUSA	0.248		
		AGSOC1	0.576		
		AGSOC2	0.469		
		AGSOC3	0.194		
		AGSOC4	0.004		
		AGSOC6	0.035		

TCD for X-variables = 0.971
TCD for Structural Equations = 0.536

Wheaton et al. suggest a ratio of approximately five or less "as beginning to be reasonable." Carmines and Mc Iver (1981) suggest from their experience, that a relative fit score of 2 or 3 is an indication of an acceptable fit between the hypothetical model and the sample data.

Judging from the standards suggested by Wheaton et al. and Carmines and Mc Iver, the overall fit of Model 1 to our sample data is not adequate. The model has a chi-square relative fit of 6.4, a value over Wheaton et al.'s recommended ceiling of 5, but not drastically so.

The Critical N for Model 1 is only 84, once again indicating the inadequacy of the fit. However, because of the significance of some of the relationships in the model and a high AGFI (adjusted goodness-of-fit index) and a low RMR (root mean square residual) we may retain the model.

4.3.3 Model 2

Like Model 1, the main dependent variable (η_3) for Model 2, RINDEX (realistic career choice) is an index variable computed from the list of realistic career alternatives (Figure 4.2). The weighting scheme, and the interpretation of the values for this dependent variable remains the same as in the first model.

Model two (Figure 4.2) is also represented by four independent or exogenous ($\xi_1 - \xi_4$) latent variables and three dependent or endogenous ($\eta_1 - \eta_3$) latent variables. The LISREL program estimated fourteen structural equation coefficients that helped identify the nature of the relationships between the independent and dependent variables in Model 2. As indicated in the discussion of Model 1,

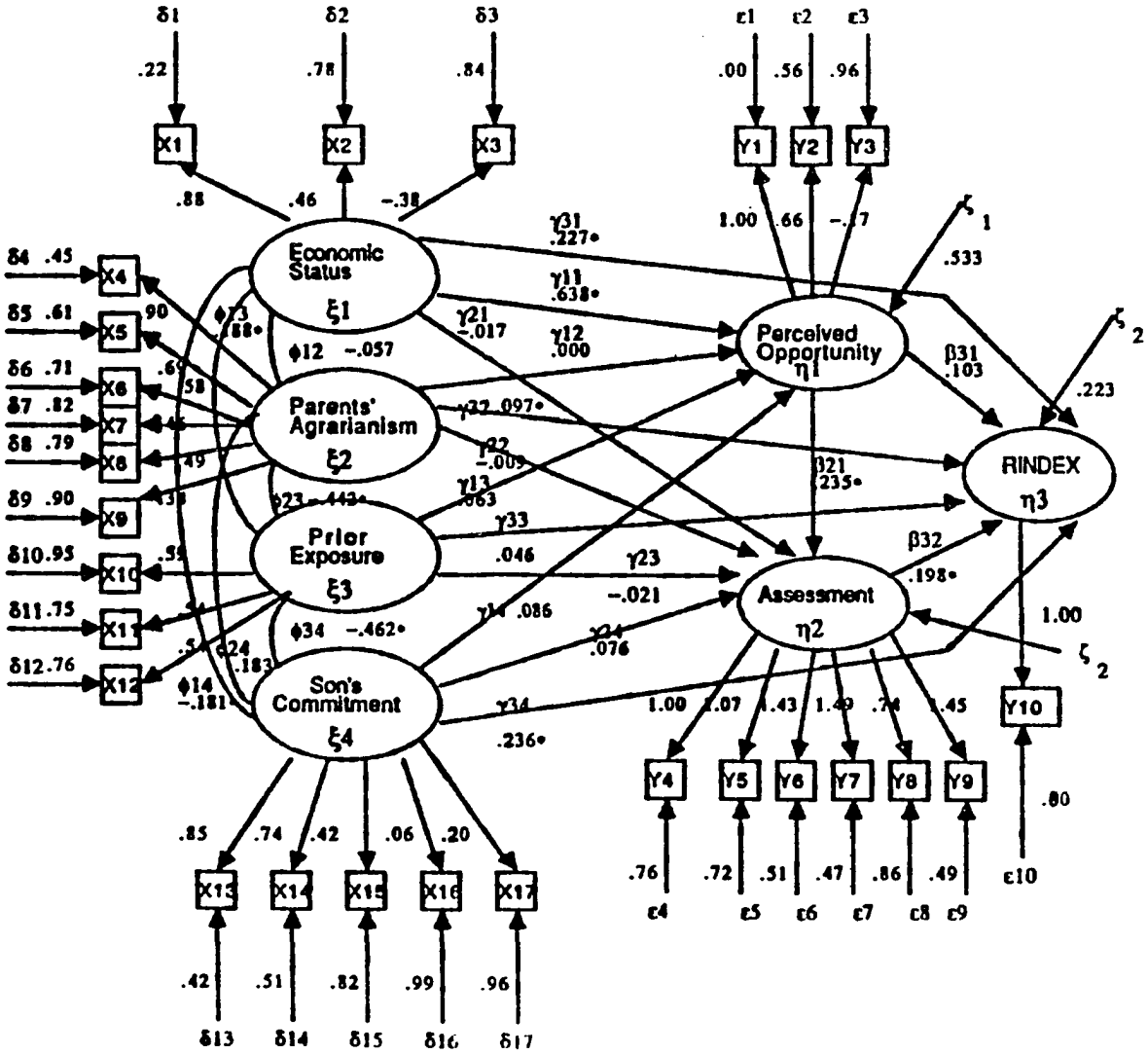


Figure 4.2: LISREL estimates of the coefficients for Model 2 with RINDEX variable as the measure of career aspiration

the paths in Figure 4.2 which lead from the exogenous variables to the endogenous variables are represented by gamma coefficients and the paths between the endogenous variables are represented by beta coefficients. All coefficients are standardized maximum-likelihood solutions. It will be recalled from the previous discussion that using standardized coefficients instead of unscaled solutions does not make interpretation of the model any different.

Three out of four independent latent variables have a significant relationship with the main dependent variable, RINDEX. Parents' economic status has a direct, positive, and significant effect on son's realistic career choice (RINDEX). This relationship confirms hypothesis 1. There is no significant indirect effect between these two variables, via son's perceived opportunity structure and his assessment of the farm crisis. The strength of this relationship is a positive, but relatively weak association ($\gamma = 0.099$) (Table 4.4).

The second exogenous variable with a significant relationship is between parents' agrarianism and son's realistic career choices. There is a direct, positive, and significant relationship (Figure 4.2). In other words, the greater the parents' agrarian values the greater the son's occupational aspiration. This relationship supports hypothesis 6. The indirect effect of parents' agrarian values on son's realistic career choice, via son's perceived opportunity structure and his assessment of the farm crisis, is negative and non-significant. The coefficient is close to zero.

The third exogenous variable that has a significant relationship with the main dependent variable is son's ideological commitment to agriculture. This relationship confirms hypothesis 10. The indirect effect of son's ideological commitment to

agriculture on his realistic career choice, via the two intervening variables (son's perceived opportunity structure and his assessment of the farm crisis) in the model, is weak and non-significant (Table 4.5).

The two intervening variables, son's perceived opportunity structure and his assessment of the farm crisis, again, play an important role in the model. As indicated in Figure 4.2, there is only one significant direct relationship between the exogenous variables and the two intervening variables, this being between parents' economic status and son's perceived opportunity structure. The relationship is very strong and is direct, positive, and significant. As in the previous model, there is no direct significant relationship between parents' economic status and son's assessment of the farm crisis in the model. The gamma coefficient for this direct relationship is a negative value, indicating an inverse relationship between the two variables, and in contrast with the relationship hypothesized. This value is, however, non-significant and negligible. Interestingly enough, however, there is an indirect, positive and relatively strong significant relationship between parents' economic status and son's assessment of the farm crisis, via perceived opportunity structure (Table 4.5). This marks the importance of the latter variable for understanding the relationship between parents' economic status and son's assessment of the farm crisis. This is also verified by the direct, positive, and significant relationship between son's perceived opportunity structure and his assessment of the farm crisis (Figure 4.2). Son's assessment of the farm crisis, in turn, has a direct, positive, and significant relationship with his realistic career aspiration, confirming hypothesis 13.

Table 4.4: Estimates for Model 2 in Figure 4.2

Parameter	Unscaled Solution (ML)			Standardized Solution (ML)
Lambda y1	1.000	*	(0.000)[a]	1.001
Lambda y2	0.660	**	(0.035)	0.660
Lambda y3	-0.175	**	(0.046)	-0.175
Lambda y4	1.000	*	(0.000)	0.485
Lambda y5	1.078	**	(0.140)	0.523
Lambda y6	1.433	**	(0.161)	0.696
Lambda y7	1.496	**	(0.166)	0.726
Lambda y8	0.746	**	(0.124)	0.362
Lambda y9	1.459	**	(0.163)	0.708
Lambda y10	1.000	*	(0.000)	1.002
Lambda x1	0.880	*	(0.000)	0.880
Lambda x2	0.466	**	(0.050)	0.466
Lambda x3	-0.389	**	(0.050)	-0.389
Lambda x4	0.900	*	(0.000)	0.900
Lambda x5	0.684	**	(0.049)	0.684
Lambda x6	0.585	**	(0.049)	0.585
Lambda x7	0.462	**	(0.051)	0.462
Lambda x8	0.495	**	(0.050)	0.495
Lambda x9	0.346	**	(0.052)	0.346
Lambda x10	0.590	*	(0.000)	0.590
Lambda x11	0.544	**	(0.061)	0.544
Lambda x12	0.548	**	(0.059)	0.548

[a] The Standard errors of the estimates are given in the parenthesis.

* Single asterisk denotes parameter values fixed by scaling.

** Double asterisks denote coefficients are statistically significant at 0.05 or less probability level.

Table 4.4: (Continued)

Parameter	Unscaled Solution (ML)			Standardized Solution (ML)
Lambda x13	0.853	*	(0.000)	0.853
Lambda x14	0.741	**	(0.053)	0.741
Lambda x15	0.442	**	(0.050)	0.442
Lambda x16	0.061		(0.054)	0.061
Lambda x17	0.208	**	(0.053)	0.061
Beta 2 1	0.114	**	(0.039)	0.235
Beta 3 1	0.103		(0.068)	0.103
Beta 3 2	0.408	**	(0.110)	0.198
Gamma 1 1	0.683	**	(0.052)	0.683
Gamma 2 1	-0.008		(0.043)	-0.017
Gamma 3 1	-0.227	**	(0.076)	0.227
Gamma 1 2	-0.000		(0.053)	0.000
Gamma 2 2	-0.005		(0.035)	-0.009
Gamma 3 2	0.097	**	(0.060)	-0.097
Gamma 1 3	0.063		(0.073)	0.063
Gamma 2 3	-0.010		(0.048)	-0.021
Gamma 3 3	0.047		(0.083)	0.046
Gamma 1 4	0.086	**	(0.055)	0.086
Gamma 2 4	0.037		(0.036)	0.076
Gamma 3 4	0.237	**	(0.063)	0.236
Phi 1 2	-0.057		(0.059)	-0.057
Phi 2 3	-0.442	**	(0.064)	-0.442
Phi 3 4	-0.462	**	(0.065)	-0.462
Phi 1 3	0.188	**	(0.070)	0.188
Phi 2 4	0.183	**	(0.059)	0.183
Phi 1 4	-0.181	**	(0.059)	-0.181
Psi 1 1	0.533	**	(0.048)	0.533
Psi 2 2	0.223	**	(0.045)	0.945
Psi 3 3	0.804	**	(0.056)	0.800
Theta Epsilon 1 1	0.000		(0.000)	

Table 4.4: (Continued)

Parameter	Unscaled Solution (ML)		
Theta Epsilon 2 2	0.565	**	(0.037)
Theta Epsilon 3 3	0.969	**	(0.064)
Theta Epsilon 4 4	0.764	**	(0.055)
Theta Epsilon 5 5	0.726	**	(0.053)
Theta Epsilon 6 6	0.516	**	(0.045)
Theta Epsilon 7 7	0.473	**	(0.044)
Theta Epsilon 8 8	0.869	**	(0.060)
Theta Epsilon 9 9	0.499	**	(0.045)
Theta Epsilon 10 10	0.000		(0.000)
Theta Delta 1 1	0.225	**	(0.048)
Theta Delta 2 2	0.783	**	(0.055)
Theta Delta 3 3	0.849	**	(0.059)
Theta Delta 4 4	0.452	**	(0.052)
Theta Delta 5 5	0.610	**	(0.052)
Theta Delta 6 6	0.715	**	(0.055)
Theta Delta 7 7	0.822	**	(0.059)
Theta Delta 8 8	0.795	**	(0.058)
Theta Delta 9 8	0.332	**	(0.046)
Theta Delta 9 9	0.900	**	(0.062)
Theta Delta 10 10	0.955	**	(0.075)
Theta Delta 11 11	0.755	**	(0.067)
Theta Delta 12 12	0.760	**	(0.068)
Theta Delta 13 13	0.424	**	(0.056)
Theta Delta 14 14	0.513	**	(0.055)
Theta Delta 15 12	-0.278	**	(0.041)
Theta Delta 15 15	0.826	**	(0.058)
Theta Delta 16 15	0.347	**	(0.045)
Theta Delta 16 16	0.997	**	(0.066)
Theta Delta 17 17	0.961	**	(0.065)

Table 4.5: Decomposition of total effects into direct and indirect effects for independent on dependent and dependent on dependent variables in Model 2

Variables		Effects		
Exogenous (Independent)	Endogenous (Dependent)	Total	Direct	Indirect
ECONOMIC STATUS	RINDEX	0.326	0.227	0.099
PARENTS AGRARIANISM	RINDEX	0.093	0.097	-0.004
PRIOR EXPOSURE	RINDEX	0.051	0.046	0.005
SON'S COMMITMENT	RINDEX	0.264	0.236	0.028
	(PERCEIVED OPPORTUNITY STRUCTURE)			
ECONOMIC STATUS	POS	0.683	0.683	
PARENTS AGRARIANISM	POS	0.000	0.000	
PRIOR EXPOSURE	POS	0.063	0.063	
SON'S COMMITMENT	POS	0.086	0.086	
ECONOMIC STATUS	ASSESSMENT	0.144-	0.017	0.161
PARENTS AGRARIANISM	ASSESSMENT-	0.009-	0.009	0.009
PRIOR EXPOSURE	ASSESSMENT-	0.006-	0.021	0.015
SON'S COMMITMENT	ASSESSMENT	0.096	0.075	0.020
Endogenous	Endogenous			
PERCEIVED OPPORTUNITY STRUCTURE	RINDEX	0.150	0.103	0.047
POS	ASSESSMENT	0.235	0.235	
ASSESSMENT	IINDEX	0.198	0.198	

As in the last model, a critical test of the present model lies in the relationship between the perceived opportunity structure and the primary dependent variable, son's realistic career choice. As observed in Model 1 and indicated in Table 4.5, there is a direct and positive effect of the perceived opportunity structure on son's realistic career choice. This relationship is, however, not statistically significant. There is, also, a slight positive indirect effect of the son's perception of the opportunity structure on his realistic career choice via the assessment of the farm crisis variable.

Some very interesting differences in the relationships between the variables in Model 1 and Model 2 may be observed. As might be expected, in Model 2 there is a much stronger direct effect of economic status on son's realistic career choices. The gamma coefficient indicating the strength of relationship between the two variables for Model 1 is 0.172, while the gamma value for Model 2 for the same path is 0.227. The indirect effect between these two variables in Model 2, via the two intervening variables is also stronger than in Model 1.

The son's ideological commitment to agriculture in Model 2 has a direct, positive, and significant effect on his realistic career choices, but this relationship is weaker relative to the corresponding relationship found in Model 1. The combined findings indicate that the objective reality of the economic variable is a more compelling factor in the explanation of realistic career choices while the attitudinal variable, son's ideological commitment, becomes more important relative to the explanation of idealistic career plans.

One other difference between the two models is in the relationship between parents' agrarianism and son's realistic career choices. In Model 2, parents' agrarianism

has a direct, positive, and significant effect on son's realistic career expectation. It becomes a potent force in the son's realistic appraisal of career choices. In contrast, this relationship in Model 1 was characterized by a very weak, nonsignificant, negative relationship.

Finally, the differences in the relationships between the two intervening variables and son's career choices in the two models are worth mentioning. In Model 2, both opportunity structure as perceived by the son and his assessment of the farm crisis have a stronger impact on realistic than idealistic career choices. This is reflected in the magnitude of the two respective coefficients (Figures 4.1 and 4.2). In Model 1, for example, the effect of opportunity structure on idealistic career choices was characterized by a coefficient of 0.002 while in Model 2 the same coefficient value is 0.103, a substantial improvement, but still not reaching statistical significance. The increase in the magnitude of the path coefficient in Model 2, however, indicates that when it comes to making a realistic career choice, that perceived opportunity structure has an impact on the decision making process whereas in an idealistic career situation, the choice is made independent of the opportunity structure. Similarly, the coefficient representing the effect of son's assessment of the farm crisis on his realistic career choices is higher (a difference of 0.087) in absolute value. Once again this indicates the importance of the assessment variable for making realistic career choices. As expected, the indirect effect of perceived opportunity structure on son's realistic career choices via his assessment of farm crisis is relatively higher in Model 2 than in Model 1 (Table 4.5).

4.3.4 Assessment of fit of Model 2 to data

The overall fit of this model to the data is similar to that observed much the same as in Model 1. However, the chi-square value for the same degrees of freedom is slightly higher. The chi-square relative fit for this model is 6.52. This increase is also reflected in a slightly lower Critical N value of 82 (Table 4.13). However, the squared multiple correlation for the structural equation for RINDEX is much higher (Table 4.6).

4.4 Results of Hypotheses Testing (Model 1 and Model 2).

Seven of the thirteen hypotheses are supported (statistically significant at .05 or less probability level) in Model 1 and Model 2. The following hypotheses are supported in this model:

Hypothesis 1: Parents' economic status is positively related to son's occupational aspirations.

Hypothesis 2: Parents' economic status is positively related to opportunities of inheriting land or farm as perceived by son.

Hypothesis 6: (in Model 2 only) Parents' agrarian values are positively related to son's occupational aspirations in farming.

Hypothesis 8: Son's ideological commitment to agriculture is positively related to his perception of opportunities to inherit land or farm.

Hypothesis 10: Sons's ideological commitment to agriculture is positively related to his occupational aspirations.

Hypothesis 12: Son's perception of opportunities to inherit land or farm is

positively related to his optimistic assessment of the farm economic crisis.

Hypothesis 13: Son's assessment of the farm economic crisis or optimism toward the future of Iowa agriculture and his chances of entering the profession of farming is positively related to his occupational aspirations.

The other six hypotheses for Model 1 and Model 2 are not supported. By and large, however, the relationships are in the predicted direction. The following are the hypotheses that are not statistically significant but are in the hypothesized direction:

Hypothesis 7: Son's exposure to non-farm occupations and environment is negatively related to his occupational aspirations.

Hypothesis 9: Son's ideological commitment to agriculture is positively related to his assessment of the farm economic crisis or optimism toward the future of Iowa agriculture and his own chances of entering the profession of farming.

Hypothesis 11: Son's perception of opportunities to inherit land or farm is positively related to his occupational aspirations. The following are the relationships that are neither statistically significant nor in the predicted direction in both models:

Hypothesis 3: Parent's economic status is positively related to son's assessment or optimism toward the future of Iowa agriculture and his own chances of entering the profession of farming.

Hypothesis 4: Parent's agrarian values are positively related to opportunities for inheriting land or farm as perceived by son.

Hypothesis 5: Parent's agrarian values are positively related to son's assessment

Table 4.6: Squared multiple correlation (SMC) for y and x- variables, and structural equation and the total coefficient of determination (TCD) for structural equations in Model 2

Y Variables	SMC	X Variables	SMC	Structural Equations	SMC
FARMOPER	1.000	NETFINC	0.775	PERCEIVED	
FEEL4	0.435	PERFINC	0.217	OPPORTUNITY	
INHERIT	0.031	LEVERAGE	0.151	STRUCTURE	0.467
FUTURE12	0.236	PAGSOC1	0.548	ASSESSMENT	0.055
FARMOP2	0.274	PAGSOC2	0.390	RINDEX	0.200
FARMOP5	0.484	PAGSOC3	0.285		
FARMOP6	0.527	PAGSOC4	0.178		
FAMOP17	0.131	PAGSOC5	0.205		
FAMOP19	0.501	PAGSOC6	0.100		
IINDEX	1.000	EXPOSURE	0.045		
		TOUTIA	0.245		
		TOUTUSA	0.240		
		AGSOC1	0.576		
		AGSOC2	0.487		
		AGSOC3	0.174		
		AGSOC4	0.003		
		AGSOC6	0.039		

TCD for X-variables = 0.971
TCD for Structural Equations = 0.517

of the farm economic crisis or optimism toward the future of Iowa agriculture and his chances of entering the profession of farming.

Hypothesis 6: (in Model 1 only) Parent's agrarian values are positively related to son's ideal career choices.

4.5 Summary of Major Findings from Model 1 and Model 2

Following are the major findings in Models 1 and Model 2.

1. When students are asked to rank their career choices, idealistically or realistically, (Model 1 and Model 2), economic status of parents, measured by average farm income, percentage of income from farming and leverage, has a direct, positive, and significant effect on son's ideal and real career choices.

2. In both models, economic status has a direct, positive and significant effect on opportunities of inheritance of land or farm as perceived by the son. In Model 2, the magnitude of this relationship is slightly higher than in Model 1.

3. When son's ideal career choice is used as the main dependent variable, parents' agrarianism has no significant direct effect. However, when the dependent variable is son's realistic career choice (Model 2), the importance of parents' agrarianism in the model is evidenced. In Model 2 this effect is significant.

5. Son's ideological commitment to agriculture has a direct, positive and significant effect on both son's ideal and real career choices. The magnitude of the effect is greater in Model 1.

6. In both models, son's ideological commitment to agriculture has a direct, positive, and significant relationship with son's perceived opportunity structure.

However, judging from the magnitude of the coefficients, the direct impact of this variable on son's perceived opportunity structure, as well as the other intervening variable, son's assessment of the farm crisis, is relatively low.

7. The two intervening variables are significantly related to each other in both models. There is a direct, positive, and significant relationship between perceived opportunity structure and assessment of the farm crisis.

8. In both Model 1 and Model 2, son's assessment of the farm crisis has a direct, positive, and significant effect on both ideal and real career choices. The relationship, however, is stronger in Model 2 than in Model 1.

4.6 Model Revision

One important aspect of the LISREL estimated path model is the assessment of the fit of the posited structural model to the sample data. If the model has a good fit, as judged by a set of evaluation criteria, then all is well. But when the fit is poor, obviously the proper thing to do is to find ways to improve the fit of the model to the sample data. Both the models presented above failed to achieve an adequate fit. Judging from the high chi-squares and low Critical N values, it was deemed necessary to venture further for a more precise model.

When model fit is inadequate, the most common alternative is to run the same model using control groups. In this study, one such appropriate control variable is student's classification. It would have been very interesting to see, for instance, if there was any significant difference between the results of the models for the freshmen group and the seniors. Unfortunately, the total sample size is not large

enough to allow an adequate four way split (freshman, sophomore, junior and senior) of the sample data. Because of small sample group size, the LISREL program was unable to estimate the coefficients. Therefore, the prospects of testing a revised model across control groups had to be abandoned.

An important option was to revise the structure of the original model by adding or dropping latent variables. This option was carried out by "trimming off" some of the latent variables. In carrying this out, two issues had to be resolved. First, the latent variables to be dropped needed to be identified and justified. Second, the theoretical relevance of the simplified model needed to be established.

The model revision proceeded by dropping two latent variables. The independent latent variable, son's exposure to non-farm occupations and environments and the intervening latent dependent variable, perceived opportunity structure were both eliminated from the model. In the process of running the original model, it may be recalled that Theta Epsilon (TE) 1 1 element in Model 1 and Model 2 was set to zero somewhat reluctantly to resolve the mathematical issue related to the estimation of the model. The equation related to the latent variable, son's perceived opportunity structure, was problematic. Thus, eliminating this latent variable could make a difference in the overall model fit. A couple of unusually high estimated parameters in the measurement equation of the latent variable, son's exposure, lead to the justification for dropping this variable in the revised model.

These actions resulted in a much improved fit, when compared with the first two models.

The revised model fit the data much better than the original data. Exact

nature of the fit will be discussed in the following section. The revised model was run twice to account for any differences attributable to the two separate main dependent variables, IINDEX (son's idealistic career choices), and RINDEX (son's realistic career choices). The overall results of the modified versions of Model 1 and Model 2 do not show any radical departure from the results of the original models. The two modified versions yield results that reinforce, to a large extent, the type of findings observed in the original models. The fundamental difference, however, is in the nature of the fit of the model to the sample data, where there is substantial improvement. The following section will highlight the major findings relative to the two modified models.

4.6.1 Model 3.1

In Model 3.1, only one of the three independent variables is significantly related to the main dependent, IINDEX (son's idealistic career choices) (Table 4.7). This variable, son's ideological commitment to agriculture, has a direct, positive, and significant relationship with idealistic career choice. With a gamma coefficient of 0.350, it signifies the strongest relationship in the model. Parents' agrarian values, another independent variable in the model, has a positive relationship with son's idealistic career choices but the relationship is weak and nonsignificant. The independent variable, parents' economic status, has a very weak positive, and nonsignificant relationship with son's idealistic career choices. None of these three independent variables has any significant indirect effect on son's idealistic career choices, via his assessment of the farm crisis (Table 4.8).

The intervening variable, son's assessment of the farm crisis performs an important function in the model. As the results show, parents' economic status has a direct, positive, and significant relationship with the son's assessment of the farm crisis. The farm crisis variable, in turn, has a direct, positive, and significant relationship with the dependent variable, son's idealistic career choice.

4.6.2 Model 3.2

The results for Model 3.2 show that two out of the three independent variables have significant relationships with the main dependent variable, RINDEX (son's realistic career choices) (Table 4.9).

Parents' economic status has a direct, positive, and significant relationship with son's realistic career choices. In the previous model this relationship was not significant. The indirect relationship between parents' economic status and son's realistic career choices, via his assessment of the farm crisis, is positive but not significant. However, by comparison, the gamma coefficient for the indirect relationship is slightly higher in this model than that observed in Model 3.1 (Table 4.10).

The other independent variable to show a direct and significant relationship with son's realistic career choices is his ideological commitment to agriculture. It may be noted that this relationship is relatively weaker in Model 3.2 than it was in Model 3.1. The indirect effect of son's ideological commitment to agriculture on his realistic career choices, via his assessment of farm crisis, is positive but very weak and nonsignificant (Table 4.10).

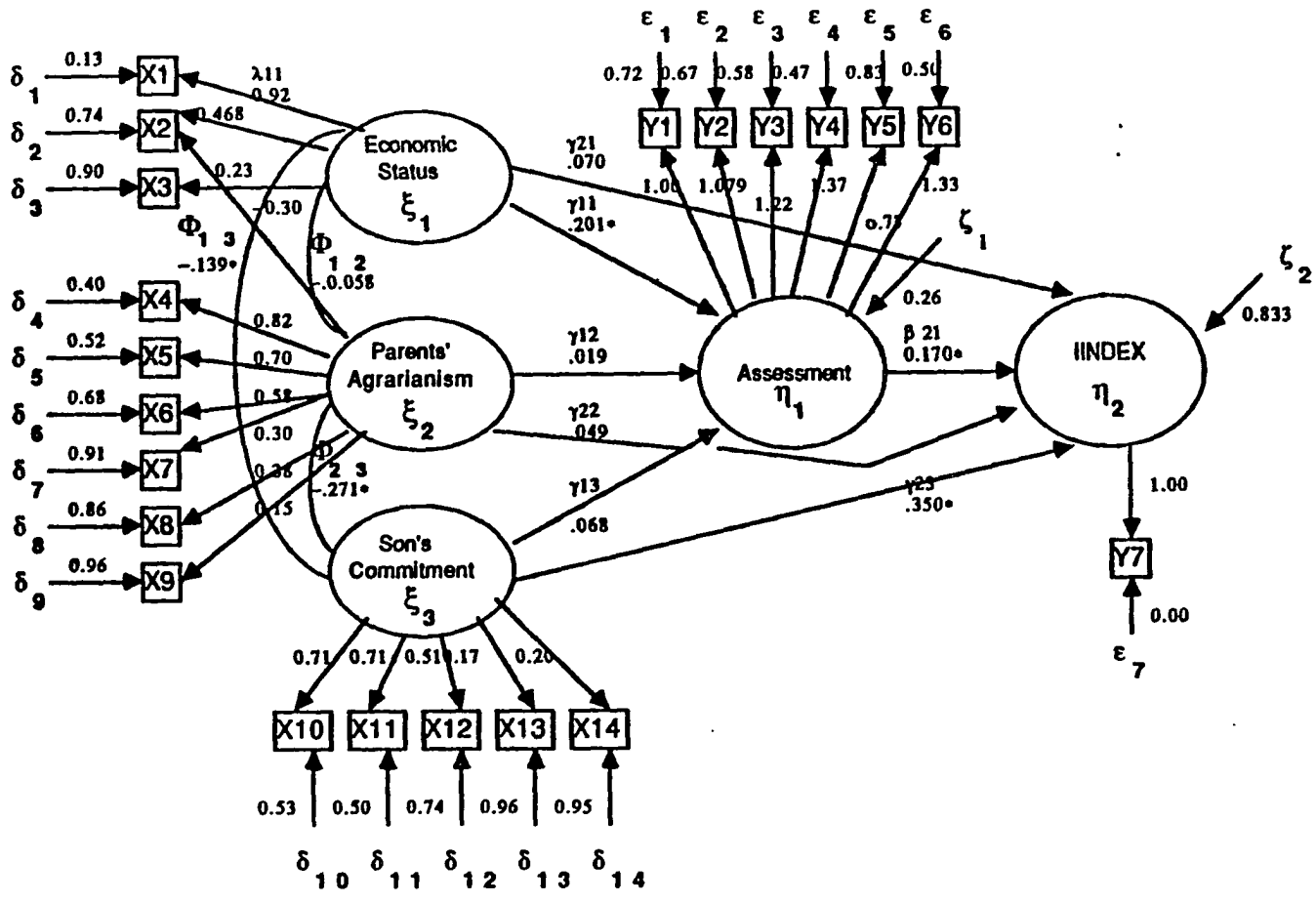


Figure 4.3: LISREL estimates of the coefficients for Model 3.1 with IINDEX variable as the measure of career aspiration

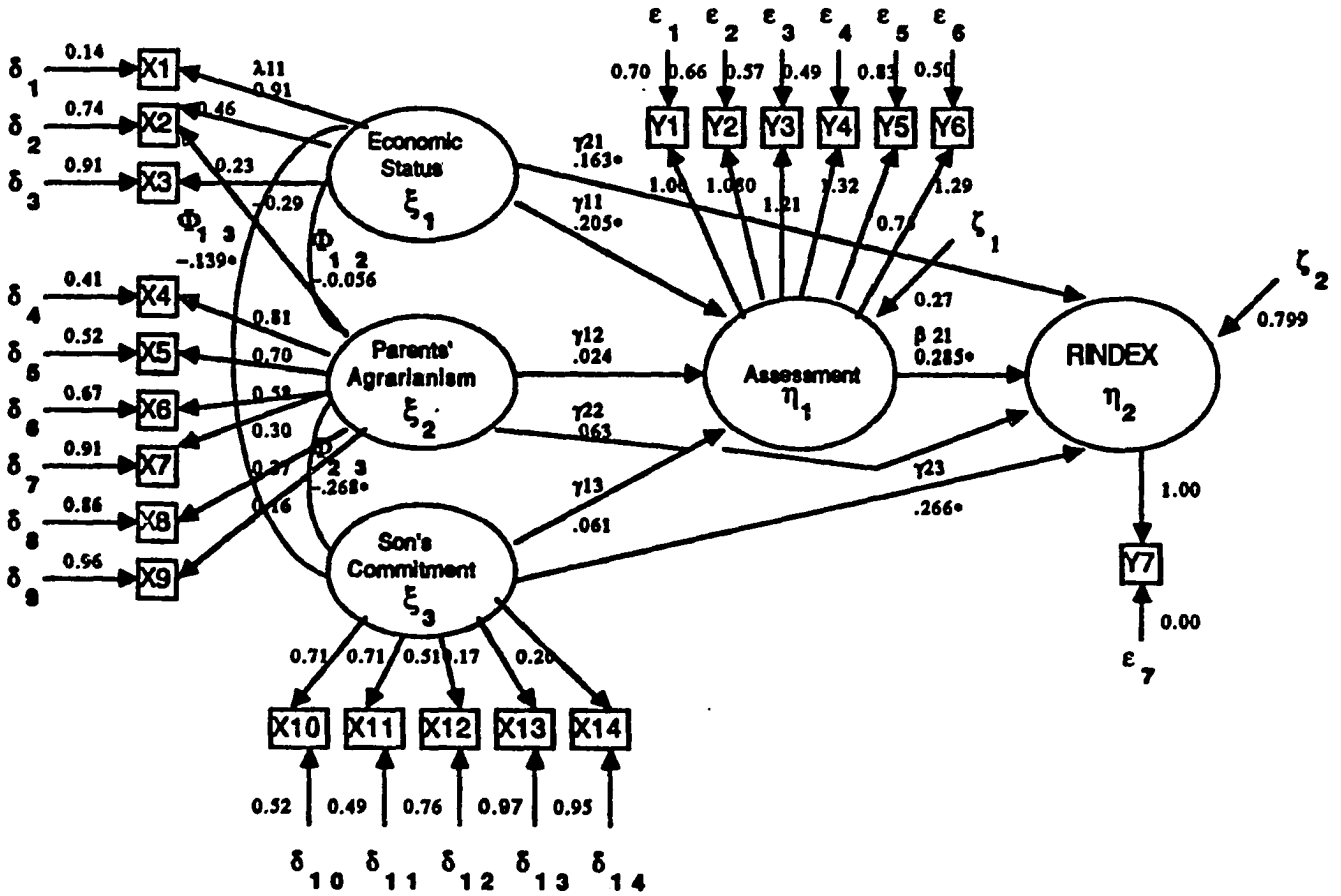


Figure 4.4: LISREL estimates of the coefficients for Model 3.2 with RINDEX variable as the measure of career aspiration

Table 4.7: Estimates for Model 3.1 in Figure 4.3

Parameters	Unscaled Solution (ML)			Standardized Solution (ML)
Lambda y1	1.000	*	(0.000)[a]	0.529
Lambda y2	1.079	**	(0.125)	0.571
Lambda y3	1.222	**	(0.132)	0.647
Lambda y4	1.375	**	(0.140)	0.728
Lambda y5	0.774	**	(0.113)	0.410
Lambda y6	1.335	**	(0.138)	0.707
Lambda y7	1.000	*	(0.000)	1.002
Lambda x1	0.992	*	(0.000)	0.922
Lambda x2	0.468	**	(0.053)	0.468
Lambda x3	-0.300	**	(0.051)	-0.300
Lambda x3.5	0.230	**	(0.048)	0.230
Lambda x4	0.825	*	(0.000)	0.825
Lambda x5	0.707	**	(0.049)	0.707
Lambda x6	0.581	**	(0.049)	0.581
Lambda x7	0.305	**	(0.052)	0.305
Lambda x8	0.380	**	(0.051)	0.380
Lambda x9	0.158	**	(0.051)	0.158
Lambda x10	0.717	*	(0.000)	0.717
Lambda x11	0.714	**	(0.053)	0.714
Lambda x12	0.511	**	(0.052)	0.511
Lambda x13	0.178	**	(0.056)	0.178
Lambda x14	0.205	**	(0.053)	0.205

[a] The Standard errors of the estimates are given in the parenthesis.

* Single asterisk denotes parameter values fixed by scaling.

** Double asterisks denote coefficients are statistically significant at 0.05 or less probability level.

Table 4.7: (Continued)

Parameter	Unscaled Solution (ML)			Standardized Solution (ML)
Beta 2 1	0.323	**	(0.100)	0.170
Gamma 1 1	0.106	**	(0.032)	0.201
Gamma 2 1	0.070		(0.050)	0.070
Gamma 1 2	0.010		(0.033)	0.019
Gamma 2 2	0.049		(0.053)	0.049
Gamma 1 3	0.036		(0.035)	0.068
Gamma 2 3	0.351	**	(0.057)	0.350
Phi 1 2	-0.058		(0.057)	-0.058
Phi 2 3	0.271	**	(0.060)	-0.271
Phi 3 1	-0.139	**	(0.060)	-0.139
Psi 1 1	0.268	**	(0.049)	0.958
Psi 2 2	0.833	**	(0.059)	0.829
Theta Epsilon 1 1	0.720		(0.053)	
Theta Epsilon 2 2	0.674	**	(0.051)	
Theta Epsilon 3 3	0.582	**	(0.047)	
Theta Epsilon 4 4	0.470	**	(0.044)	
Theta Epsilon 5 5	0.832	**	(0.058)	
Theta Epsilon 6 6	0.500	**	(0.045)	
Theta Epsilon 7 7	0.000		(0.000)	
Theta Delta 1 1	0.139	**	(0.062)	
Theta Delta 2 2	0.741	**	(0.055)	
Theta Delta 3 3	0.909	**	(0.061)	
Theta Delta 4 4	0.400	**	(0.047)	
Theta Delta 5 5	0.527	**	(0.049)	
Theta Delta 6 6	0.681	**	(0.053)	
Theta Delta 7 7	0.912	**	(0.062)	
Theta Delta 8 8	0.864	**	(0.060)	
Theta Delta 9 8	0.305	**	(0.045)	
Theta Delta 9 9	0.960	**	(0.064)	
Theta Delta 10 10	0.534	**	(0.052)	
Theta Delta 11 11	0.507	**	(0.057)	

Table 4.7: (Continued)

Parameter	Unscaled Solution (ML)	Standardized Solution (ML)
Theta Delta 12 12	0.747 ** (0.058)	
Theta Delta 13 12	0.292 ** (0.046)	
Theta Delta 13 13	0.969 ** (0.065)	
Theta Delta 14 09	0.229 ** (0.044)	
Theta Delta 14 14	0.954 ** (0.064)	

Table 4.8: Decomposition of total effects into direct and indirect effects for independent on dependent and dependent on dependent variables in Model 3.1

Variables		Effects		
Exogenous (Independent)	Endogenous (Dependent)	Total	Direct	Indirect
ECONOMIC STATUS	ASSESSMENT	0.201	0.201	
PARENTS AGRARIANISM	ASSESSMENT	0.019	0.019	
SON'S COMMITMENT	ASSESSMENT	0.068	0.068	
ECONOMIC STATUS	IINDEX	0.104	0.070	0.034
PARENTS AGRARIANISM	IINDEX	0.053	0.049	0.004
SON'S COMMITMENT	IINDEX	0.362	0.350	0.012

The intervening variable, son's assessment of the farm crisis portrays very much the same type of relationship as observed in Model 3.1, except that the relationship is much stronger.

Even with the two variables removed, Model 3.1 and Model 3.2 retain much the same pattern of relationships as observed in the original models. The modified versions show once again that parents' economic status and son's ideological commitment to agriculture are the two key independent variables. Moreover, these versions also show that these two independent variables have a significantly different function in the two models. Parents' economic status seems to play a much more important role in explaining the son's realistic career choices than it does in explaining his idealistic career choices. Alternatively, son's ideological commitment to agriculture makes a stronger contribution to explaining his idealistic than his realistic career choices. The intervening variable, son's assessment of the farm crisis also plays a variable role in the two revised models. It has a much stronger relationship with son's realistic career choices than his idealistic career choices, although, in both cases, the relationship is statistically significant.

4.6.3 Assessment of fit of Model 3.1 and Model 3.2 to data

At the measurement level, out of the twenty-one y-and x-variables, five x-variables have squared multiple correlations (SMC) less than 0.1 in both models and the total coefficient of determination is relatively low. However, the total coefficient of determination for x-variables is 0.987. The SMC for RINDEX in Model 3.2 shows a relatively higher value.

Table 4.9: Estimates for Model 3.2 in Figure 4.4

Parameter	Unscaled Solution (ML)			Standardized Solution (ML)
Lambda y1	1.000	*	(0.000)[a]	0.539
Lambda y2	1.080	**	(0.122)	0.582
Lambda y3	1.214	**	(0.128)	0.655
Lambda y4	1.323	**	(0.134)	0.713
Lambda y5	0.752	**	(0.110)	0.405
Lambda y6	1.292	**	(0.132)	0.697
Lambda y7	1.000	*	(0.000)	1.001
Lambda x1	0.914	*	(0.000)	0.914
Lambda x2	0.462	**	(0.053)	0.462
Lambda x3	-0.298	**	(0.052)	-0.298
Lambda x3.5	0.230	**	(0.048)	0.230
Lambda x4	0.817	*	(0.000)	0.817
Lambda x5	0.707	**	(0.049)	0.707
Lambda x6	0.586	**	(0.049)	0.586
Lambda x7	0.300	**	(0.052)	0.300
Lambda x8	0.375	**	(0.051)	0.375
Lambda x9	0.100	**	(0.051)	0.160
Lambda x10	0.721	*	(0.000)	0.721
Lambda x11	0.721	**	(0.054)	0.721
Lambda x12	0.497	**	(0.053)	0.497
Lambda x13	0.176	**	(0.056)	0.176
Lambda x14	0.214	**	(0.053)	0.214

[a] The Standard errors of the estimates are given in the parenthesis.

* Single asterisk denotes parameter values fixed by scaling.

** Double asterisks denote coefficients are statistically significant at 0.05 or less probability level.

Table 4.9: (Continued)

Parameter	Unscaled Solution (ML)			Standardized Solution (ML)
Beta 2 1	0.529	**	(0.102)	0.285
Gamma 1 1	0.111	**	(0.033)	0.205
Gamma 2 1	0.163	**	(0.050)	0.163
Gamma 1 2	0.013		(0.034)	0.024
Gamma 2 2	0.063		(0.052)	0.063
Gamma 1 3	0.033		(0.036)	0.061
Gamma 2 3	0.267	**	(0.055)	0.266
Phi 1 2	-0.056		(0.058)	-0.056
Phi 2 3	0.268	**	(0.060)	0.268
Phi 3 1	-0.140	**	(0.060)	-0.140
Psi 1 1	0.278	**	(0.050)	0.957
Psi 2 2	0.799	**	(0.057)	0.797
Theta Epsilon 1 1	0.709	**	(0.052)	
Theta Epsilon 2 2	0.661	**	(0.050)	
Theta Epsilon 3 3	0.571	**	(0.047)	
Theta Epsilon 4 4	0.496	**	(0.044)	
Theta Epsilon 5 5	0.836	**	(0.058)	
Theta Epsilon 6 6	0.514	**	(0.045)	
Theta Epsilon 7 7	0.000		(0.000)	
Theta Delta 1 1	0.148	**	(0.061)	
Theta Delta 2 2	0.744	**	(0.055)	
Theta Delta 3 3	0.910	**	(0.062)	
Theta Delta 4 4	0.414	**	(0.047)	
Theta Delta 5 5	0.528	**	(0.050)	
Theta Delta 6 6	0.675	**	(0.053)	
Theta Delta 7 7	0.915	**	(0.062)	
Theta Delta 8 8	0.867	**	(0.060)	
Theta Delta 9 8	0.300	**	(0.045)	
Theta Delta 9 9	0.960	**	(0.064)	
Theta Delta 10 10	0.525	**	(0.052)	
Theta Delta 11 11	0.496	**	(0.058)	

Table 4.9: (Continued)

Parameter	Unscaled Solution (ML)	Standardized Solution (ML)
Theta Delta 12 12	0.760 ** (0.058)	
Theta Delta 13 12	0.297 ** (0.046)	
Theta Delta 13 13	0.970 ** (0.065)	
Theta Delta 14 09	0.227 ** (0.044)	
Theta Delta 14 14	0.950 ** (0.064)	

Table 4.10: Decomposition of total effects into direct and indirect effects for independent on dependent and dependent on dependent variables in Model 3.2

Variables		Effects		
Exogenous (Independent)	Endogenous (Dependent)	Total	Direct	Indirect
ECONOMIC STATUS	ASSESSMENT	0.205	0.205	
PARENTS AGRARIANISM	ASSESSMENT	0.024	0.024	
SON'S COMMITMENT	ASSESSMENT	0.061	0.061	
ECONOMIC STATUS	RINDEX	0.221	0.163	0.058
PARENTS AGRARIANISM	RINDEX	0.070	0.063	0.007
SON'S COMMITMENT	RINDEX	0.283	0.266	0.017

Both the models have a very good overall fit. For both, Model 3.1 and Model 3.2 the relative chi-square fit is 2.48 with 179 degrees of freedom and a probability level of 0.000 (Table 4.13). (A higher level was desired).The good fit is further verified by high Critical N values for both models. For both, the CN is 229. Recall that a CN value of 200 or more is an indication of a good fit.

For both models the Goodness-of-Fit Index (GFI) is relatively high. The Adjusted Goodness-of-Fit Index (AGFI) for both the models is also high. As desired, the Root Mean Square Residual (RMR) is quite low, also indicating a good fit (Table 4.11 and Table 4.12).

4.7 Summary of Major Findings in Model 3.1 and Model 3.2

The major findings in Model 3.1 and Model 3.2 are stated below.

1. Unlike Model 1 and 2, Model 3.1 shows a non-significant relationship between students' ideal career choices and economic status. In Models 3.2, however, there is a significant relationship between the two variables.

2. In both models, economic status has a direct, positive and significant effect on son's assessment of the farm crisis.

3. In both models, son's ideological commitment to agriculture has a direct, positive, and significant effect on the dependent variable. However, the magnitude of this relationship in Model 3.1 is larger.

4. In both models, the intervening latent variable, assessment of the farm crisis is significantly related to the dependent variable.

Table 4.11: Squared multiple correlation (SMC) for y and x- variables, and structural equation and the total coefficient of determination (TCD) for structural equations in Model 3.1

Y Variables	SMC	X Variables	SMC	Structural Equations	SMC
FUTURE12	0.280	NETFINC	0.861	ASSESSMENT	0.042
FARMOP2	0.326	PERFINC	0.259	IINDEX	0.171
FARMOP5	0.418	LEVERAG	0.091		
FARMOP6	0.530	PAGSOC1	0.600		
FARMOP17	0.168	PAGSOC2	0.473		
FARMOP19	0.500	PAGSOC3	0.319		
IINDEX	1.000	PAGSOC4	0.088		
		PAGSOC5	0.136		
		PAGSOC6	0.040		
		AGSOC1	0.466		
		AGSOC2	0.493		
		AGSOC3	0.253		
		AGSOC4	0.031		
		AGSOC6	0.046		

TCD for X-variables = 0.986
TCD for Structural Equations = 0.173

Table 4.12: Squared multiple correlation (SMC) for y and x- variables, and structural equation and the total coefficient of determination (TCD) for structural equations in Model 3.2

Y Variables	SMC	X Variables	SMC	Structural Equations	SMC
FUTURE12	0.291	NETFINC	0.852	ASSESSMENT	0.043
FARMOP2	0.339	PERFINC	0.256	RINDEX	0.203
FARMOP5	0.429	LEVERAGE	0.090		
FARMOP6	0.509	PAGSOC1	0.586		
FARMOP17	0.164	PAGSOC2	0.472		
FARMOP19	0.486	PAGSOC3	0.325		
RINDEX	1.000	PAGSOC4	0.085		
		PAGSOC5	0.133		
		PAGSOC6	0.040		
		AGSOC1	0.475		
		AGSOC2	0.504		
		AGSOC3	0.240		
		AGSOC4	0.030		
		AGSOC6	0.050		

TCD for X-variables = 0.984
TCD for Structural Equations = 0.145

5. In both models, parents' agrarianism has no significant effect on either assessment of the farm crisis or the respective main dependent variable.

4.8 The Congruency Between Ideal and Realistic Career Choices

Previous sections of this chapter have presented results from the two path models and their modified versions. The first model and its modified version demonstrated the nature of the relationship between the students' ideal career choices and related independent variables. The second model and its modified version analyzed the nature of the relationship between the students' realistic career choices and related independent variables. The two models portray some significant differences in relationships. These results raised some interesting theoretical questions. For instance, how would the results vary if a new variable, created from the differences between ideal and realistic career choices, were used? Also, would such a model help shed additional light on the impact of the farm crisis on career aspirations? To answer these and other related questions, a new model with a new dependent variable was needed.

In creating this new model, it became evident that the meaning of the new dependent variable was sufficiently different from the previous dependent variables to warrant the development of a new theoretical argument. Instead of examining career aspirations, this new variable focused on the degree of congruency between ideal and real states of occupational aspirations. While this is a fascinating area of study, it was deemed to be beyond the original research objectives and was therefore abandoned.

It was deemed appropriate, however, to at least look into the nature of the relationship between the ideal and realistic career choices. To accomplish this task, the two sets of ten ideal and realistic career choice variables were collapsed into two numerical categorical variables. For each respondent only the ideal and the realistic career choices with a number one ranking were chosen and compared. The resulting cross tabulation allowed a comparison of the two types of choices and the resulting consistency patterns. The results of the cross tabulation are presented in Table 4.14.

The crosstabular analysis yielded a highly significant chi-square value of about 450 with 16 degrees of freedom. Only 20 percent of the cells have expected values less than 5 which is an acceptable level (Norusis, 1987). The high chi-square value indicates that the two variables are not independent of each other. The existence of a relationship between the variables is supported by a significant pearson correlation coefficient (0.679) and a high gamma coefficient (0.767) as reported in Table 4.14.

The existence of a strong linear relationship between the two variables is indicated in the table by the large number of observations distributed on the diagonal (top left to bottom right). It is interesting to note that the cells below the diagonal are virtually void of responses. This pattern indicates that very few of those choosing something other than full time farming as an ideal career choice, felt that they would be constrained to enter the occupation. For example, of the 151 respondents who stated that their ideal vocation was non-farm, non-agricultural in nature, none indicated that they would realistically end up in farming, either full or part time. This leaves the incongruent groups largely distributed above the diagonal.

Table 4.13: Comparison of model statistics

	Model 1	Model 2	Model 3.1	Model 3.2
Chi-square Likelihood Ratio	1969.18	1994.45	443.45	443.56
Probability Level	0.00	0.00	0.00	0.00
Degrees of Freedom	306	306	179	179
Relative Fit (Chi-square/df)	6.43	6.52	2.48	2.48
Critical N (CN)	84	82	229	229
Goodness of Fit (GFI)	0.79	0.79	0.91	0.91
Adjusted Goodness of Fit (AGFI)	0.74	0.73	0.90	0.89
Root Mean Square (RMR)	0.093	0.094	0.056	0.055

Table 4.14: Crosstabulation of the Ideal and Realistic Career Choices

Ideal Choices	Rfull-time 1	Rpart-time 2	Roff-farm 3	Rnon-fara 4	Rnon-fana 5	Row Total
Ifull-time (1)	30 (28.0%)	10 (9.3%)	40 (37.4%)	16 (15.0%)	11 (10.3%)	107 (23.5%)
Ipart-time (2)	1 (3.8%)	4 (15.4%)	6 (23.1%)	4 (15.4%)	11 (42.3%)	26 (5.7%)
Ioff-farm (3)	1 (1.0%)	3 (3.1%)	47 (48.5%)	22 (22.7%)	24 (24.7%)	97 (21.3%)
Inon-fara (4)	1 (1.3%)	1 (1.3%)	0 (.0%)	57 (76.0%)	16 (21.3%)	75 (16.4%)
Inon-fana (5)	0 (.0%)	0 (.0%)	4 (2.6%)	4 (2.6%)	143 (94.7%)	151 (33.1%)
Column Total	33 (7.2%)	18 (3.9%)	97 (21.3%)	103 (22.6%)	205 (45.0%)	456 (100.0%)

Chi-square	D.F	Significance
449.96627	16	0.0000

Statistic	Value	Significance
Pearson's R	0.680	0.0000
Gamma	0.767	0.0000

This pattern, as discussed below, is probably an accurate reflection of the changing opportunity and demographic structure of modern-day American agriculture.

The diagonal distribution represents the respondents who are consistent in their ranking of the ideal and the corresponding realistic career choices. To one degree or another, the consistent groups are distributed in a roughly linear fashion. For example, 28 percent of the students who ranked full-time farming as their number one ideal career choice felt that they would realistically end up in full-time farming. However, a still larger percentage (37.4 percent) indicated that they would probably return to full-time farming at a later date, indicating the existence of two predominant paths for those who desire to enter farming. The part-time category represents the lowest consistency level between ideal and real choices (15.4 percent). This is partly due to the fact that only 5.7 and 3.9 percent of the sample chose this alternative as either their ideal or realistic career option.

The remainder of the consistent groups regularly increase in size. Those who would idealistically elect to enter an off-farm job upon graduation and return to farming later on, had a consistency rate of 48.5 percent, while the consistency rate for those choosing a non-farm agricultural career upon graduation is 76.0 percent. Finally, the highest consistency occurs among those who ideally select a non-farm, non-agricultural career option upon graduation; their consistency rate with realistic choices registers 94.7 percent.

Over half (50.5 percent) of the sample ideally want to engage in farming (either full-time, part-time or returning to farming later on) but only 32.4 percent list these options as their realistic first choices. On the other hand, over 33 percent

ideally express a desire to enter a non-farm, non-agricultural career, but 45.0 percent realistically feel they will end up there. Both of these findings indicate that more persons have aspirations for farming than can realistically be absorbed into the present structure.

For those who ideally want to enter full-time farming, roughly 75 percent feel that they will realistically end up in some type of farming at some time. Interestingly, the largest percentage of respondents in this category feel that they will enter farming later on (37.4 percent) which might indicate that they are waiting for better times or waiting until their resources are such that farming is seen as a more realistic alternative. Overall, there exists a sense of optimism among this group, even though the findings signal a significant amount of deferred gratification. The fact that this large a percentage of those whose ideal is full time farming realistically feel that they will return to farming at a later time might suggest a respecification of the rungs on the traditional "agricultural ladder."

A comparatively small group (5.7 percent) aspires to an initial part time farming situation. Of this group, only about 15 percent feel that their chances for part time farming are realistic. The largest group (42.3 percent) realistically expect to be in a non-farm non-agricultural career, which conceivably could be used as a resource base to enter their ideal of part time farming.

A surprisingly large percentage of the sample (21.3 percent) would idealistically like to pursue a non-farm job and return to farming later. As stated, almost 50 percent of this group shows consistency between the ideal and real. By and large, this group seem to have given up any realistic hope of either full or part-time

farming at the present. In addition to the 50 percent consistency demonstrated in this group, almost all other realistic responses are divided between the non farm agricultural and non-farm non-agricultural categories.

For those whose ideal career is an agricultural but non-farm career alternative, there is high degree of consistency with their realistic expectations. As pointed out earlier, over three-fourths of the group that ideally want to enter an ag-related career realistically feel that they will do so. They are individuals who are quite content with a career in agriculture, but not in production agriculture. They probably represent a group with strong agricultural backgrounds who see a future in agriculture, but are not willing to assume the risks, the uncertainties, or the life styles of production agriculture.

The last category, representing those who have selected non-agricultural careers as their ideal, has always been an important alternative for farm youths. For one reason or another, there have always been farm children who have strongly opted for alternative career paths. It is interesting to note, that by a rather wide margin, there is a higher consistency pattern between the ideal and real choices for this group (94.7 percent) than for any of the other categories. This means that this group perceives that they will have a higher success rate than those in any of the other categories in realizing their ideal. As this is an extremely broad category, this high consistency rating does not mean that the group will proceed without frustrations in pursuing their ideal career, but in broad strokes, it does signal a general consistency.

5 DISCUSSION AND CONCLUSION

This chapter is divided into four major sections. The first section includes a summary and discussion of the findings of the study. The second section outlines the limitations of the study. The third section is a discussion of the implications of the study. Finally, directions for future research is discussed in the concluding section.

5.1 Summary of Findings

This section will, for the most part, deal with the results of the path models. Those results will be reported in the context of the thirteen hypotheses in Chapter II. Before outlining the major findings from the tested path models, however, some of the descriptive findings will be highlighted.

The average age of the students in the sample was 21 years while the average ages of their parents were 51 years (father) and 48 years (mother). The average size of their families' farming operation was 458 acres; only 4 percent of the parents had a net farm income of $60,000 or more, while 24 percent had a net farm income of $15,000 or less in 1986. The remainder, some 72 percent, had net farm incomes that ranged between these two extremes with an average of $37,500.

A significant percentage of students reported that the farm economic crisis of

the 1980s had affected their educational and occupational aspirations. More than 50 percent responded by saying that the farm crisis had altered their educational plans. About one-third of the students had changed their major at least once and some reported changing it more than once. The impact of the farm crisis was listed among reasons that students gave for changing majors. More crucial to this study is the fact that 56 percent of the students agreed that their future career plans had been affected in some way. Forty percent of the student respondents reported that they would have chosen farming as a profession if they had the choice. Sixteen percent stated that they would have gone directly into farming instead of first coming to college had the farming situation been better.

Students' rankings of alternative ideal and realistic career options are also revealing in assessing the impact of the farm crisis. Twenty-four percent of the students reported that they would choose to go into full-time farming after graduation from college under ideal conditions. The number of those who "realistically" expect to follow that career path drops dramatically to only 7 percent. Twenty-two percent of the student sample both idealistically and realistically would for an off-farm job upon graduation, but return to full time farming later on. Another category of respondents who preferred not to enter directly into production agriculture, but rather choose a non-farm agriculturally-related occupation upon graduation, accounted for 17 percent of the "idealistic" choices and an even higher 23 percent of the "realistic" choices. Yet another indication of the possible impact of the farm crisis on career aspirations may be observed among those who opted for an occupation completely outside of agriculture. Thirty-four percent ranked a non-farm non-agricultural oc-

cupation as their ideal choice. But a considerably larger 46 percent realistically believed that they would actually end up in a non-agricultural occupation.

There is reason to believe that, in addition to the influence of parents' financial status on their son's career aspirations that their advise, expressed or implied, is also a potent force. It was found that only 7 percent of the parents would unconditionally recommend farming to todays youth. Forty-four percent said that they would recommend farming only if the potential entrant is totally committed to the profession of agriculture. Nineteen percent said that they would give a go signal only if the young man had solid financial backing from his relatives. More than one-quarter (26 percent of the parents) said they would not recommend farming to a young man under any circumstances.

Quite a large number of that student respondents in this study are optimistic about the future of Iowa agriculture, despite their parents pessimism. Fifty-four percent hope for a promising future in Iowa agriculture. Additionally, fifty-five percent of the respondents believe that Iowa farming system still offers opportunities favorable to potential young entrants.

The major analytical portion of this study involved testing of four path models. The major findings from these models, as they directly relate to the major objective of this study (i.e., accounting for the impact of the farm crisis on the student's career choices), are summarized here.

In three out of four models the exogenous variable, economic status, showed a direct, positive, and significant effect on the occupational aspiration of students. This relationship is strongest in the case of the model which explains realistic career

aspirations. The difference in the magnitude of the relationship between these two variables is best observed in the modified version of the original models (Model 3.1 and Model 3.2). In the first of these models parents' economic status has a very weak and nonsignificant relationship with "ideal" career aspirations. In the second modified model, however, it shows a positive, direct and significant relationship with son's "realistic" career aspiration.

The exogenous variable, parents' economic status, shows a very strong direct, positive, and significant relationship with son's perceived opportunity structure in both of the original models. However, parents' economic status shows no sign of a significant relationship with son's assessment of the farm crisis in either model. The coefficients are very low negative values and are contrary to hypothesis 3 which predicted a positive relationship between these two variables. However, the indirect influence of socio-economic status on assessment of the farm crisis, via son's perceived opportunity structure is significant and in the predicted direction.

The exogenous variable, son's ideological commitment to agriculture, was found to be another important variable in the model. In all four models it has a direct, positive, and significant effect on career aspirations. However, its contribution is greatest in Model 1, explaining the ideal career aspirations of the son. This observation is based upon the magnitude of the estimated coefficient. However, this variable consistently failed to show any significant relationship, direct or indirect, with both son's perceived opportunity structure and the assessment of the farm crisis variables. However, all relationships in this set of variables are at least in the predicted direction.

In Models 1 and 2, the two intervening variables, perceived opportunities of inheriting land and assessment of the farm crisis have a direct, positive, and significant relationship with each other. In Model 2, son's perceived opportunity structure is also positively related to realistic career choice, but the relationship is not statistically significant. In all four models, son's assessment of the farm crisis has a positive, direct, and significant relationship with the respective dependent variables.

Although the variable son's perceived opportunity structure had a direct, strong, and significant relationship with parents' economic status and son's assessment of farm crisis, it was decided to drop it from the revised model. The reason for eliminating the variable elimination was technical rather than theoretical in nature. As noted in Chapter 3, there was a coefficient estimation problem. Further estimation of the model coefficients was contingent upon fixing this problem first. In addition an identification problem arose due to the elimination of the exogenous variable (prior exposure), discussed in Chapter 3. To continue with the estimation of the model coefficients, the error term in one of the indicator variables of the latent variable (son's perceived opportunity structure) was fixed to zero. This is not the most desirable solution to such an estimation issue, however; as indicated in Chapter 3, some researchers recommend this as the best solution.

It is true that dropping the endogenous latent variable, son's perceived opportunity structure, in the revised model deletes an important variable from the model, but in doing so the model succeeded in registering the theoretical linkages between the three endogenous variables. Future research should explore this relationship in the context of a model where it can be retained. The background variables remain

unexplained in these recursive models. But it may useful to examine the correlations among them. The four exogenous variables in Model 1 and Model 2 yield six pairs of relationships. Interestingly, except for one pair, all of the relationships are statistically significant. The sole non-significant relationship is observed between parents' economic status and their agrarian values in both the original and modified set of models. Both of these variables, however, correlate significantly with the other two exogenous variables in the model. Economic status is positively correlated with son's exposure to non-farm occupations and environments and negatively correlated with son's ideological commitment to agriculture. Parents' agrarianism is negatively correlated with son's exposure to non-farm occupations and environments, but positively correlated with son's ideological commitment to agriculture.

5.2 Discussion

This study has established, among other things, the nature of the linkage between the son's career aspirations and his parents' economic status. This finding fits with one of the basic assumptions of the status attainment model (Blau and Duncan, 1976), which states that ascribed social class influences the educational and occupational aspirations of young people.

In this study, parents' economic status was found to be more important in the prediction of realistic, than idealistic, career choices. In Models 1 and 2, this is demonstrated in the difference in the magnitude of the coefficients, which are stronger for realistic career choices. The difference is more pronounced in the modified versions of the original models. In Model 3.1, the economic status variable

bears a weak and nonsignificant relationship to son's idealistic career choice. In Model 3.2, which focuses on realistic choices, the relationship is significant and in the predicted direction. Theoretically, the differences observed in the strength of the association between the status variable and idealistic and realistic career options were consistent with our expectations. For example, Super (1957) characterizes the trial and error process that a youth goes through in the vocational development process as largely revolving around his/her self-concept. The final outcome of the occupational choice process results from an attempt to attain an equilibrium between the ideal elements of the self concept and the realistic content of the work roles. His self-concept may lead him to pursue a certain career (ideally), but he may soon realize that reality dictates an alternative path. Thus, the more realistic the aspiration is, the more the influence of the parents' economic status on his level of aspiration.

Another interesting finding of this study is the type of relationship existing between parents' economic status and the two intervening variables, son's perceived opportunity structure and his assessment of the farm crisis. It was observed in Model 1 and 2 that, as expected, economic status bears a strong relationship with the perceived opportunity variable. It appears as if sons have heightened perceptions, especially in times of economic crisis, as to the type of opportunity his family has available with regard to entry into farming. In the same two models, however, the relationship between the son's assessment of the farm crisis and parents' economic status is very weak. There is, however, an indirect relationship between them, via son's perceived opportunity structure which is strongly related to the

son's assessment of the farm crisis. This relationship points to a pragmatism and rationality in the son's assessment of the farming situation. This triangular relationship emphasizes the importance of son's perception of opportunities in the family as a key intervening variable. Its mediary role can also be observed in the absence of any direct and significant relationship with either ideal or realistic career aspiration.

The absence of a relationship between son's perceived opportunity structure and ideal and realistic career aspirations has methodological implications worth mentioning. It suggests that mere perception of opportunity is not a variable antecedent to the aspiration variable. When the triangular relationship between economic status, son's perceived opportunity, and assessment of the farm crisis is eliminated in subsequent models (Model 3.1 and Model 3.2) by dropping the son's perceived opportunity structure variable (for reasons explained in chapter IV), an interesting relationship emerges. There is a renewed direct and significant relationship between parents' economic status and son's assessment of farm crisis, a relationship that was observed only indirectly in the original models.

Son's ideological commitment to agriculture is another important variable in the model. Although it is not significantly related to either of the intervening variables, it bears a strong relationship with both idealistic and realistic career aspirations. The son's ideological commitment to agricultural is a measure of his values and beliefs related to the agricultural system in America. The existence of a significant relationship between the two variables demonstrated the importance of the value system in influencing his career aspirations.

An important aspect of the model is the inclusion of the assessment variable. The very objective of this study, i.e., to measure the impact of the farm crisis on the student's career aspiration, dictated the need to include this variable in the model. It was assumed that those who wanted to pursue a farming career would make a rational evaluation of the current state of the farming business before committing themselves to it. This assumption is well founded in Ginzberg's (1951) theory of vocational development which suggests that youth who are going through the "realistic stage", are likely to integrate interests, capabilities, and values to evaluate the real environment before making a final decision on what career to pursue.

A few words may be said about the functions of two theoretically opposing variables in the model and their contribution towards explaining career aspirations. The two variables are son's ideological commitment to agriculture and his assessment of the farm crisis. The first variable describes his value orientation, a very subjective condition, while the second variable measures his rational assessment, which is essentially an attempt on the part of the student to objectively describe reality. This difference is more pronounced in the modified version (Model 1 and Model 2) of the original models. In Model 3.1 (Figure 4.3) it may be observed that the son's ideological commitment is much more strongly related than his assessment of farm crisis to idealistic career aspiration. The value of the coefficient indicates that association of son's commitment with idealistic career aspiration is more than twice that of the assessment of the farm crisis. This was to be expected because in an idealistic situation a student is more likely to chose or aspire to a career that is in congruence with his beliefs and ideology and personal preference,

since there is no harm in expressing his personal desires in this hypothetical situation. The association is modified in Model 3.2 (Figure 4.4) where assessment of the farm crisis variable has a much stronger effect on realistic career aspirations when compared to the previous model. In addition, this relationship is stronger than that between son's ideological commitment to agriculture and realistic career aspirations, although the difference in gamma the coefficient is not a dramatic one.

Son's exposure is the only variable in the first three models which shows no significant relationship with other variables in the model. This was one of the reasons why it was dropped from the revised model. Previous studies have not treated this variable empirically and thus its importance in explaining occupational aspirations is not known. Previous references to this variable, however, are found in articles by Burchinal (1965), and Blau et al., (1956), suggesting the need for including such a variable in future research studies.

One possibility for the lack of a relationship between exposure and either form of the dependent variables lies in the measurement of the variable itself. There is some question as to the validity of the construct used to measure exposure. The other possibility is that this variable is simply unimportant in accounting for occupational aspiration in times of economic crisis. The variable was included in the model with the hope that it would serve as an effective control variable, used in discerning the effect of factors like knowledge of non-farm occupations or other dimensions not directly related to economic factors. For instance, the general heightened awareness stimulated by travelling outside of Iowa or the U.S or the increased exposure to nonfarm jobs created by having brothers or sisters or their

spouses in these jobs seemed like logical alternatives. One factor which may have been important is assessing this variable is that one of the component variables had 169 missing values. Such a large count in one of the three indicators could have affected the variable.

A few words may be said about the observed relationships among the exogenous variables in the models. It is not possible to make conclusive remarks about the relationship between parents' economic status and their commitment to agrarianism, because the correlation is not significant. However, the negative relationship observed indicates a potentially interesting relationship. The direction of the relationship indicates that with better financial conditions a farmer is less likely to uphold traditional agrarian values. It must be reemphasized, however, that the relationship is relatively weak and non-significant. However, son's agrarianism is also negatively associated with his parents' financial status, but in this case the relationship is statistically significant. This finding has a direct bearing on the discussion of commitment and consistent behavior in Chapter 2. It was argued that agrarianism is a set of attitudes and beliefs related to farming and agriculture. Strong agrarian values suggest a high commitment to farming and agriculture. The interpretation of the observed inverse relationship between economic status and agrarianism suggests something about the degree of commitment to agriculture. Becker (1960) viewed commitment as an explanation of "consistent behavior". Consistent lines of activity seem to imply a rejection by the actor of feasible alternatives. Recall the discussion of "side-bets" by Becker with regard to commitment and consistent behavior. Following his line of reasoning, one could say that a committed farmer is

one who enters into a relationship where, aside from direct obligations, there is also a series of diffuse, unspecified, secondary obligations, or what Becker calls "commitment by default" or the fine print in his unwritten contract. Aronson and Mills (1959) have also shown (empirically) that a person who has gone to a great deal of trouble or pain to attain something, tends to value it more highly than those who attain something with a minimum of effort. Thus the negative correlation between financial status and agrarian values, suggesting adherence to such values even in a time of financial crisis, supports Becker (1960) and the others' contentions.

There is a positive and significant correlation between parents' agrarianism (or ideological commitment to agriculture) and son's agrarianism (or son's ideological commitment to agriculture). A significant coefficient ($\phi = .183$) suggests a modest but significant relationship between parents' and son's agrarian values. The lack of a stronger relationship between these two variables may suggest that parents and their sons share common agrarian values, but may not agree upon every aspect of the agricultural value system. It will be recalled that it was the son's agrarianism which had a strong and significant effect on both his ideal and realistic career aspiration and not his parents' (except for a weak, although significant, relationship in Model 2, Figure 4.2).

5.3 Implications

American agriculture has changed dramatically since the days of the first settlers on land. It has been transformed from a network of predominantly small family enterprises to a system dominated by the large capitalistic corporate organizations

of today. From 1870 to the present, the capital component of the agricultural system has increased from 17 percent to 62 percent, changing the structure of the system beyond recognition. As capital flowed into the agricultural system, human labor (both family and hired) became more and more obsolete, decreasing from 65 to 16 percent during this roughly 100 year period. Even with this dramatic reversal from a labor to a capital intensive system, one cannot help but appreciate the persistence of the traditional family farm system. The number of family farming operations has diminished almost to the point of extinction; their contribution to overall productivity, has been seriously attenuated as corporate farms rise gradually but inevitably; their future is highly unpredictable, and some government policy makers seem willing to close the chapter on them. Despite such vulnerability, family farming in America continues to be the major spawning ground for the future farmers of America. The seeds for the next generation are still sown here, carefully nurtured and groomed by the system. In a unique sort of way, this study has provided a snapshot view of that perennial process within the American agricultural system.

Traditional patterns of farm occupational status attainment still persist today. This study has produced evidence that supports the alternative interpretation of the "agriculture ladder" process discussed in Chapter 1. It was shown that the notion of the "agricultural ladder" and the common meaning attached to it by the agricultural analysts of the 1900s was based on myth and heresay rather than on facts and figures of the time. Reanalysis of past agricultural census data has revealed a much different picture of the opportunity structure available to young aspirants to farming. The

prevailing notion that hard work and savings were the basis for climbing the rungs of the "agricultural ladder" from unpaid family laborer to the owner operator status was gradually replaced by the reality that the intergenerational family farm transfer was the chief mechanism for farm youth to fulfill farm attainment goals. This system persists today.

It was noted from the analysis of the data, that the sons of the high resources and solvent (high annual net income and low leverage) farmers are most likely to aspire to farming as a career path. The reason for this hinges on the simple fact that the acquisition of a farming operation by a young person occurs mostly through farm inheritance and other intergenerational methods of farm transfer. Future prospects for a young aspirant whose parents or relatives have little or nothing to offer are not bright. The conclusion is derived from evidence from the results of the tested path models. Almost all the paths or relationships originating from the parents' economic status and ending in realistic career aspirations are significant and in the predicted direction. For instance, parents economic status has a positive and significant relationship with son's realistic career aspirations. Economic status is also significantly related to son's perceived opportunity structure, which in turn is related to realistic career aspirations. The same is true for the assessment variable. Either directly, as in the modified version model, or indirectly, via son's perceived opportunity structure in the original model, parents' economic status is significantly related to the assessment variable, which in turn is significantly related to realistic career choice.

In addition to having parents with sufficient resources, these youth who are

pursuing a career in farming have further enhanced their position by acquiring a college education. The number of aspiring farmers attending college is gradually increasing. A college education promises to provide the key to adjustment and control of the ever changing American agricultural system. This situation implies the emergence of a dual rural social hierarchy comprised of the educated sons of well-to-do farmers operating inherited farms at the top a diminishing number of limited resource farmers at the bottom. Even future tenant farmers will most likely come from among people who already possess sufficient resources and who have had exposure to higher education.

While significant obstacles for the future generation of independent farmers are present, some means of circumventing obstacles are currently emerging. In the past, young people from rural areas did have the alternative of pursuing a non-farm agricultural occupation. However, in recent times, the emergence and growth of corporate farming and agribusiness has opened up new opportunities for entering into the agricultural industry, albeit in a different form. Corporate farms offer direct employment in production agriculture. Agribusiness firms, employ people in their plants and businesses. Employment in this sector does not promise a direct entry into production agriculture for those desiring this career path, but could assist them in ways that might eventually allow a successful move. In this study it was found that there are a significant number of students who expect to go into nonfarming jobs and come back to farming later on. Among this category of young aspirants one could infer that a significant percentage will seek jobs with agribusiness firms. This involvement with agriculture, but not directly in production agriculture, could be

perceived as the resource gathering rung of a revised agricultural ladder. Whether this alternative is a realistic appraisal or a "pipe dream" and whether the realities of the changing structure of agriculture would permit these aspirants to be absorbed in future farming systems are questions which can only be resolved in future research.

The results of this study have a bearing on the Marxian analysis of American agricultural structure and change. The study did not attempt to directly measure social class and other concepts central to Marxian analysis of a society, thus it does not pretend to reflect on the validity and utility of these concepts. However, the Marxian theoretical perspective was used to advance a sociological explanation of the of the dynamic forces in the American agricultural system. In the process, the model was used to describe the changing opportunity structure in agriculture, and also shed light on the disproportionate distribution of benefits to different economic groupings. The perspective also provides a context for viewing the future of American agriculture.

5.4 Conclusion

The major conclusion that can be drawn from this study is that career choices, both ideal and realistic, can be explained by a combination of variables. The variables could be arranged in a causal order, a strategy that can be achieved by path modeling. With the exception of the two main dependent variables, the rest of the variables in the models were latent variables with multiple indicators.

Career aspirations of farm-reared youth have been significantly impacted by the farm economic crisis of the early 1980s. Potentially as a result of the crisis,

the youth in study have indicated that they are seeking alternative career paths, some which will allow them to remain close to farming, but not necessarily in the production end, while others which will lead to the pursuit of options quite distinct from agriculture. This study has been able to identify some of the antecedent variables which contribute to the formation of career aspirations and has included variables which are both structural and individual in nature.

In testing the proposed path models using the LISREL computer program, it became evident that it is very important to specify the model correctly and use appropriate data. An assessment of the proper specification and data can be found in how well the model fits the data. The originally proposed model tested in this study ran into problems of fit. The two original models with four exogenous variables and three endogenous variables had a fit that was far from adequate. It must be emphasized, however, that an inadequate fit does not warrant doing away with the model completely. The results clearly showed that even with a poor fit, the first three models had some significant relationships that were interpretable and fully acceptable. Following indications of where the original model could be revised, a simpler model, yet one which retained theoretical significance, was tested, yielding excellent results. The model fit to the data was quite adequate.

As alluded to above, two different sets of models were tested. The first was a set of two models that represented the originally proposed model. The second set consisted of two models that were revised in order to achieve a better fit. In both sets, the models were presented in logical order. The first model tested for student's ideal career choices and the second for student's realistic career choices. There is

evidence of important differences between these two models.

In all of the four models tested, two background or exogenous latent variables clearly stand out as the most consistent predictor of career aspirations. They are parents' economic status and son's ideological commitment to agriculture. It can be concluded that the background (latent exogenous) variables can explain career aspirations inherently, without the intervening variables - at least in three out of the four models. However, there is no reason to downplay the important contribution of the assessment of farm crisis as an intervening variable. Its importance was well established as evidenced in the revised models.

5.5 Limitations

There are limitations to the study that should be addressed. One such limitation has its origin in the sample selection stage of the data collection. Because of budget constraints, it became difficult to draw an uncontaminated sample from the ISU Registrar's list of actively enrolled students. To obtain a sample limited to student with farmer parents would have been too costly given the limited budget was beyond the allocated expense budget of the study. The initial sample was drawn from all students listing a rural route address. As a result of this procedure, a portion of the sample, consisting of those with no farm background, were ineligible. This led to a drop in the sample size. Also, in addition to non responses, there was a matching problem. Completed and returned questionnaires which did not match (i.e., parent and son) were not included in the final sample. All of these factors led to a substantial drop in the final sample size used for analyses. The remaining

sample was not large enough to test models separately for control groups. One important control group which could have made a substantial difference in the fit of the original model to the data, was student classification. It is evident in the data that significant differences could have been observed in the way that freshmen as opposed to seniors responded to certain. Other control variables could also have been introduced if the sample size had been adequate.

Another limitation to the study concerns the inadequate fit of the originally proposed models. Overall, conclusions from these models must be drawn with extreme caution. However, it should be noted that when certain components of the models are assessed, conclusions from them can be safely drawn. In other words, the significant relationships in the model can be accepted in their own right, quite independent of the overall model fit. It must also be pointed out that not all indicators of the latent variables are perfect measures. Examination of the multiple squared correlation of the x and y-variables suggested that some indicator variables were not reliable (see Tables 4.8 to 4.13). For Models 1 and 2, a Theta Epsilon element had to be fixed to a zero to overcome problem in model estimation. This is not a desired practice. However, it is one of the solutions that has often being recommended and used by researchers. It is important to note, however, that the use of this strategy did not affect the model in any apparent adverse manner.

5.6 Future Research

In view of the limitations of this study, a few new directions for future research may be suggested. First, attention should be paid to the sample selection strategy.

While the sampling strategy used here is a legitimate alternative, other sampling frames should be considered in future studies. Female students should also be incorporated in future studies and proper adaptation of the theoretical model should be made. Steps should be taken to increase the response rate and sample size. Future research should also inquire into alternative strategies that could be used by those who desire to enter farming but lack the means to do so.

An impact assessment study generates the most reliable results when the research design involves before and after observations. In this light, it might be suggested that future investigations employ follow-up studies should to fully assess the impact of the farm crisis. Such studies have not only practical utility, but theoretical importance as well. From a practical stand point, it would be interesting to discover how many people actually achieve their aspired goal and what elements are related to success in this regard. Findings could then be channeled as input into curriculum decisions and other career-related systems. For theoretical purposes, findings from such time series investigations might throw some light on identification of linkages between aspiration and actual behavior.

Future research in the area of changing agricultural structure and farming opportunities should explore the possibilities of replicating this study by conducting a comparative examination of changing agricultural structure in a third world country. A few words may be said about the possible nature of such an undertaking. Since the author is from Bangladesh, that country will be chosen for the purpose of the following discussion. Comparative reference will be made to the USA in general but specific mention will be made of Iowa where necessary.

Technology plays a very important part in the agricultural economy of both the USA and Bangladesh. Although technology functions at different levels in the two countries, the social consequences of the use of the respective technologies seem to result in similar changes. The following discussion is a brief overview of the social impacts of agricultural technology on the two societies.

The impact of modern technology on American society has been phenomenal. In a relatively short period, technology has transformed a predominantly rural society into an almost completely urbanized society. Modern technology has also brought about radical changes in American agricultural structure. Adoption of modern technology by the American family farmer has occurred largely under free market conditions. There has never been any central planning to regulate the choice and adoption of technologies. Most farmers, however, have chosen to include advanced agricultural technology as a critical input in their production process, contributing directly to the decreased number of farm operators and the larger average size of farms. The process has substantially reduced the opportunities of entering farming. The results of this study are consistent with these observations.

The farming system encountered in Bangladesh is substantially different from that found in Iowa. Iowa agriculture by comparison is highly efficient and output per worker is very high. In contrast, Bangladesh agriculture is low in efficiency and the production capacity per worker is very low. It has, in the past few decades, consistently failed to produce enough food to sustain the rural population, let alone the entire country.

In face of these differences, however, the two systems have one very important

thing in common. As in Iowa, family farms in Bangladesh are the basic unit of production. Farming is considered a way of life. Roughly eighty percent of the Bangladesh population are engaged, either directly or indirectly, in the agricultural production system. Like their American counterparts, Bengalee farmers work hard and long hours on their farms.

Although Iowa agriculture is far more advanced than Bangladesh agricultural technology, they are both subject to the whims of weather and other natural conditions. Unlike Iowa, Bangladesh has a tropical climate. But both Iowa and Bangladesh suffer from periodic drought conditions which threaten the very existence of farmers in both systems. Bangladesh is also plagued with recurring floods that destroy or damage human life and crops.

The farmers in both countries also suffer from chronic debt problems. When Iowans fail to repay bank loans, they lose their farms; similarly, Bengalee farmers lose their farms to local money lenders or sell farms at low prices to repay loans.

At this juncture, a closer look may be given to the role of technology in the agricultural structure of Bangladesh. It must be said at the outset that factual information on Bangladesh is very hard to come by. Often, the information that is available must to be questioned on its reliability. The following discussion will be limited to the appropriateness of technology in the context of Bangladesh agriculture. The discussion will center on a technology that has improveed crop yields namely, dry season irrigation.

Land is one of the scarcest factors of agricultural production in Bangladesh. Of the fourteen and half million hectares of land, only about eight and one-half million

hectares (60 percent) are cultivated. Most of that (4.6 million hectares) is used for single crop production. A little over three million hectares are double cropped and only 0.6 million hectares are triple cropped. The latter category is becoming more important as more and more land is brought under dry season cultivation (November to April).

Since the passage of land acquisition act of 1951, land has been privately owned in Bangladesh. However, fewer and fewer people are currently able to own land for cultivation. By 1978, fifty-four percent of the rural population was identified as landless. Included in this category are those owning less than half an acre of land. However, the present rate of landlessness is even higher. At present, only 8 percent of the population owns 45 percent of the total land. Among other factors, a social factor has contributed to the landlessness process. The Muslim Law of Inheritance requires that the wealth and property of the muslim family be equally divided among spouse and children. It may be recalled that roughly 80 percent of the 100 million people in Bangladesh are muslims. In rural areas, is the major source of wealth. Land has been transferred from one generation to the next and with each generation the size of the transferred land has decreased seven to eight times, depending upon family size. Another factor contributing to the rapid turnover of agricultural land is the low life expectancy rate. As a result of the land fragmentation process, the Bangladesh countryside is repleat with very small sized farms. They are often so small that they are not economically viable for regular crop production. The adoption of modern technology is almost impossible. Capital poor farmers cannot use these lands as collateral for bank loans. Often they end up borrowing money

from local moneylenders who are known for charging exorbitant interest rates on their money. Their rates are often known to go over 100 percent. Many farmers who cannot pay back the money lenders lose their land and belongings and end up migrating to the nearest town or the capital city in search of some means to survive.

Displacement of the rural population from agriculture in Bangladesh has also been caused by improper transfer of technology. To illustrate this point, the social impact of large-scale irrigation technology will be discussed. Not too long ago, when there was less population pressure, Bangladesh was producing enough food for its people. The Bengalee farmers took advantage of the monsoon (May to September) rain for their irrigation purposes. Farmers are now under pressure to cultivate not one, but three crops a year. The third cropping system for the dry season is a relatively new idea. The resource requirements are much higher than the traditional cropping systems that the farmers are used to. The high yielding variety (HYV) rice and wheat crops, introduced during the Green Revolution, require very special attention and inputs. This variety of rice also requires a heavy application of water. During the dry season most water holes, lakes, and canals dry up, leaving very little disposable surface water for irrigation purposes. To overcome this problem the Bangladesh government introduced in its five-year plans the provision of funds for acquiring mechanized water pumps. There are basically three types of water pumps that have been introduced to the farmers over the past few decades. The first type involves mechanized deep tube-well pumps, the second type involves mechanized shallow tube-well pumps, and the third type involves manually operated shallow tube-well pumps.

In the hopes of overcoming the food problems of Bangladesh in a relatively short period the government decided to introduce the deep tube-well pumps to irrigate the dry season crops. These tube-well pumps have a total capacity of pumping 2 cubic feet of ground water per second. They can be operated by electricity or gasoline, but since the countryside lacks electricity, the gasoline operated pumps were predominant. The complete system is imported from abroad. Gasoline to run the pump engine is also imported. This system puts pressure on the government's annual budget. The introduction of this technology has also created adverse effect on the community where it is used. It is now a well established fact that the deep tube-well pumps have impoverished a lot of farmers in Bangladesh. These pumps are distributed through farm cooperatives formed through government assistance. It quickly became evident that a few rich farmers reaped the benefit of this new technology. The rich farmers often convince the government well diggers to choose a well site close to their farm. This gives them control of the pump and the water canals distributing the pumped water.

The inappropriateness of the irrigation technology described above is clear. For a government with an underdeveloped economy, it has been a drain on its hard earned foreign currency. The technology did not register a significant multiplier effect nor was it operated up to its potentials. Only a small percentage of land of was brought under the irrigation due to the shortage of fuel and maintenance parts. Moreover, the technology has had an adverse social effect on the population.

Another irrigation technology, more appropriate to the agricultural context of Bangladesh, has recently been introduced. This is the manually operated shallow

tube-well pumps. The increase in the numbers of these pumps and their rapid gains in popularity among the farmers have been evident. Whatever adverse effect it has had has been smaller in scale. In fact, studies have repeatedly shown that this technology has more benefits than disadvantages. Moreover, it has helped small farmers immensely. It has a modest capacity of less than half a cusec, but since it is locally produced, the cost price has been kept at a level where small farmers can afford to buy or lease it. This technology is labor intensive. It has created job opportunities for landless rural populations during the dry season. Most importantly it has helped rural women to work in fields for a wage. It must be mentioned that because of the veil system, women are traditionnally barred from working outside the house. This social norm is gradually changing, however, as more and more women are going out of their home to earn a living for the family. During the author's stay in the village areas, he was involved in projects studying the socio-economic impact of large and small-scale irrigation technology. He observed many cases of farmers building a makeshift booth around the manually operated shallow tube-wells for the women to work, thus allowing her privacy.

It has been observed that small farmers, using appropriate technology, have achieved success in economically sustaining themselves in the face of very adverse conditions. Thus, small-scale, low-cost irrigation tube-wells are preferable for the existing social organization because they are more efficient than the more mechanized and costly technology. The small-scale technology has proven to have multiplier effects too. They are efficient because they bring about long term-economic returns to the farmers who adopt them. They have created jobs and made job

training possible.

Future research should look into the labor displacement rate of comparable agricultural technologies in advanced and developing countries. More in-depth analysis of the social impacts of such technologies can also be done. Another area of research that can be pursued is in the area of agrarian values. A comparative study of agrarian values and the ways in which they change in the face of rapid societal changes could also me made.

One thing is clear from the evidence ammassed in the dissertation and in the author's experience in Bangladesh. Technology plays a highly significant role in altering agricultural structure. It also holds direct implications for opportunity structures in agriculture. As technology is introduced into agricultural systems, an inexorable move toward larger and larger operation is set into motion, as technologies operate most efficiently under larger scale conditions. As pointed out, blind acceptance of many types of technology can put substantial pressure on existing societal conditions, including the traditional system of land transfer. With careful planning and with the introduction of appropriate technology, however, change can be achieved in the context of existing cultural conditions and value systems. While the precise implications of technological change are likely to be different in the U.S.and Bangladesh, there is no doubt that it plays a highly significant role in agricultural structure and in the continuity of that structure. Comparative analysis of the similarities and differences of the agricultural experience in differing cultural contexts can only help us to expand our understanding of the impacts of modern technology.

6 BIBLIOGRAPHY

Alexander, K., B. K. Eckland, and L. J. Griffin
1975 "The Wisconsin model of socioeconomic achievement: A replication." *American Journal of Sociology* 81:342-42.

Aronson, Elliot and Judsons Mills
1959 "Effect of severity of initiation on liking for a group." *The Journal of Abnormal and Social Psychology* 59:177-181.

Ball, A. Gordon and Earl O. Heady
1972 "Trends in farm and enterprise size and scale." In A. G. Ball and E. O. Heady (eds.) *Size, Structure and Future of Farms.* Ames, Iowa: Iowa State University Press.

Barkley, P. W.
1976 "A contemporary political economy of family farming." *American Journal of Agricultural Economics* 58:812-819.

Barton, A. H.
1970 *Communities in Disaster.* Garden City, New York: Anchor, Doubleday.

Beale, Calvin L.
1979 "Demographic aspects of agricultural structure." In *Structure Issues of American Agriculture.* USDA/ESCS Agricultural Economic Report 438:80-86.

Beck, E. M., Patrick M. Horan, and Charles M. Tolbert, III
1978 "Stratification in a dual economy: A sectoral model of earnings determination." *American Sociological Review* 43:704-720.

Becker, Howard
1960 "Notes on the concept of commitment." *American Journal of Sociology* 66:32-41.

Bender, L. D., D. J. Hobbs, and J. F. Golden
1967 "Congruence between aspirations and capabilities of youth in a low-income rural area." *Rural Sociology* 32:278-289.

Bentler, P. M., and Chih-Ping Chou
1987 "Practical issues in structural modeling." *Sociological Methods & Research* 16:78-117.

Blau, Peter M. and Otis Dudley Duncan
1967 *The American Occupational Structure.* New York: John Wiley & Sons, Inc.

Blau, Peter M., John W. Gustard, Richard Jessor, Herbert S. Parnes and Richard C. Wilcock
1956 "Occupational choice: A conceptual framework." *Industrial and Labor Relations Review* 9:531-543.

Bluestone, Barry, William M. Murphy, and Mary Stephenson
1973 *Low Wages and the Working Poor.* Ann Arbor, Michigan: Institute of Labor and Industrial Relations, University of Michigan.

Bohlen, Joe, and Dean R. Yoesting
1968 "Congruency between occupational aspirations and attainments of Iowa young people." *Rural Sociology* 33:207-213.

Borg, Walter R., and Meredith Gall
1983 *Educational Research: An Introduction.* 4th ed. New York: Longman.

Bowers, Norman
1979 "Young and marginal: An overview of youth employment." *Monthly Labor Review* 102:4-18.

Brewster, D.
1979 "Historical notes on agricultural structure." *Structural Issues of American Agriculture.* Agricultural Economic Report No. 438. Washington, D. C.: U.S. Department of Agriculture.

Burchinal, L. G.
1965 *Rural Youth in Crisis: Facts, Myths, and Social Change.* Washington, D.C: U.S. Department of Health, Education, and Welfare.

Business Week
1985 Booms, busts, and ambitions: How one small-town bank fell. *Business Week* 15:112-113

Buttel, Frederick H.
1983 "Beyond the family farm." In Gene F. Summers (ed.), *Technology and Social Change in Rural Areas.* Boulder, Colorado: Westview Press.

Carlson, John E., and Maurice E. Mc Leod
1978 "A comparison of agrarianism in Washington, Idaho, and Wisconsin." *Rural Sociology* 43:17-30.

Carmines, Edward G., and John P. Mc Iver
1981 "Analyzing models with unobserved variables." In George W. Bohrnstedt and Edger F. Borgatta (eds.), *Social Measurement: Current Issues.* Beverly Hills: Sage Publications.

Cochrane, Willard W.
1979 *The Development of American Agriculture.* Minneapolis: University of Minnesota Press.

Coleman, James S., R. H. Bremmer, B. R. Clark, J. B. Davis, D. H. Eichorn, Z. Griches, J. F. Kett, N. B. Ryder, Z. B. Doering, and J. M. Mays
1972 *Youth: Transition to Adulthood.* Chicago: University of Chicago Press.

Cooley, Horton
1956 *Human Nature and the Social Order.* New York: The Free Press.

Cronbach, Lee J.
1951 "Coefficients alpha and the internal structure of tests." *Psychometrika* 16:297-334.

Davis, James A.
1985 *The Logic of Causal Order.* Beverly Hills, Calif.: Sage Publications.

Davis, John Emmeus
1980 "Capitalist agricultural development and the exploitation of the propertied laborer." In Buttel, Frederick H. and Howard Newby (eds.), *The Rural Sociology of the Advanced Societies: Critical Perspectives.* Montclair: Allanheld, Osmun.

Deutsch, Morton and Robert K. Krauss
1965 Theories in Social Psychology. New York. Basic Books, Inc.

Dewey, John
1930 *Human Nature and Conduct.* New York: Modern Library.

Donald, J. R., and L. A. Powell
1975 "The food and fiber system: How it works." U.S. Department of Agriculture, Economic Research Service, National Economic Analysis Division, *Agriculture Information Bulletin* 383.

Dorner, Peter
1983 "Technology and U. S. agriculture." In Gene F. Summers (eds.), *Technology and Social Change in Rural Areas.* Boulder, Colorado: Westview.

Durost, Donald D., and Evelyn T. Black
1978 Changes in the Farm Production and Efficiency, 1977. U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, *Statistical Bulletin* 612.

Ely R. T.
1917 "Landed property as an economic concept and as a field of research." *American Economic Review*, Supplement 7:18-35.

Falk, William W.
1982 "Rural youth and the labor force." In Don A. Dillman and Daryl J. Hobbs (eds.), *Rural Society in the U. S. Issues for the 1980s.* Boulder: Westview Press.

Flinn, William L. and Donald E. Johnson
1974 "Agrarianism among Wisconsin farmers." *Rural Sociology* 39:187-204.

Ford, Julienne and Steven Box
1974 "Sociological theory and occupational choice." In W. H. Williams (ed.), *Occupational Choice.* London: George Allen and Unwin Ltd.

Frundt, H. J.
1975 "American Agribusiness and U.S. Foreign Agricultural Policy." Unpublished Ph.D. Dissertation. Rutgers University, New Brunswick, New Jersey.

Gamson, William A. and Andre Modigliani
1974 *Conception of Social Life. A Text-Reader for Social Psychology.* Boston: Little, Brown and Company.

Gates, P. W.
1973 *Landlords and Tenants on the Prairie Frontier.* Ithaca, New York: Cornell University Press.

Ginder, Roger G., Kenneth E. Stone, and Daniel Otto
1986 "Impact of the farm financial crisis on agribusiness firms and rural communities." In Joint Economic Committee, Congress of the United States, *New Dimensions in Rural Policy: Building upon our Heritage.* Washington, D.C.: U.S. Government Printing Office.

Ginzberg, Eli, S. W. Ginsberg, S. Axelrad, and J. L. Herma
1951 *Occupational Choice: An Approach to a General Theory.* New York: Columbia University Press.

Goodwyn, Lawrence
1980 "The cooperative commonwealth and other abstractions: In search of a democratic promise." *Marxist Perspectives* 3:8-42.

Goodwyn, Lawrence
1976 Democratic Promise. New York: Oxford University Press.

Gordon, Bultena, Paul Lasley, and Eric O. Hoiberg
1983 *Educational, Occupational and Residential Patterns of Iowa Farm-Reared Youth.* Iowa State University. Cooperative Extension Service Pm-1108.

Goss, Kevin, Richard Rodefeld, and Frederick Buttel
1980 "The political economy of class structure in U.S. agriculture," in Frederick H. Buttel and Howard Newby (eds.), *The Rural Sociology of the Advanced Societies: Critical Perspectives.* Montclair, New Jersey: Allanheld, Osmun, and Co.

Gray, L. C.
1924 "Farm ownership and tenancy." *1923 Yearbook of Agriculture.* Washington, D.C.: U.S. Department of Agriculture.

Gulley, James L.
1974 *Beliefs and Values in American Farming.* United States Department of Agriculture, Economic Research Service Publication No. ERS-558.

Haller, Archibald O.
1960 "The occupational achievement process of farm-reared youth in urban-industrial society." *Rural Sociology* 25:321-333.

Haller, Archibald O.
1957 "The influence of planning to enter farming on plans to attend college." *Rural Sociology* 22:137-141.

Haller, Archibald O., and W. H. Sewell
1967 "Occupational choices of Wisconsin farm boys." *Rural Sociology* 32:37-56.

Ham, W. T.
1940 "The labor in an era of change." In *Farmers in a Changing World, 1940 Yearbook of Agriculture.* Washington, D.C.: U.S. Department of Agriculture.

Haris, M.
1974 *Entrepreneurial Control in Farming.* U.S. Department of Agriculture, Economic Research Service. ERS-542.

Heffernan, William D., and Judith B. Heffernan
1986 "The farm crisis and the rural community." In Joint Economic Committee, Congress of the United States, *New Dimensions in the Rural Policy: Building Upon Our Heritage.* Washington, D.C.: U.S. Government Printing Office.

Hoelter, Jon W.
1983 "The analysis of covariance structures: goodness-of-fit indices." *Sociological Methods & Research* 11:325-344.

Holland, John L.
1966 *The Psychology of Vocational Choice: A Theory of Personality Types and Model Environments.* Waltham, Mass.: Blaisdell Publishing Company.

Holland, John L.
1959 "A theory of vocational choice." *Journal of Counseling Psychology.* 6: 35-45.

Hollingshead, A. B.
1949 *Elmtown's Youth.* New York: John Wiley and Sons, Inc.

Horan, Patrick M.
1978 "Is status attainment research atheoretical?" *American Sociological Review* 43:534-541.

Hyman, Herbert H.
1942 "The psychology of status." *Archives of Psychology* No. 269.

Joreskog, Karl and Dag Sorbom
1986 *LISREL Analysis of Linear Structural Relationships by the Method of Maximum Likelihood.* Version VI. Uppsala, Sweden: University of Uppsala.

Joreskog, Karl G. and Dag Sorbom
1983 *LISREL Analysis of Linear Structural Relationships by the Method of Maximum Likelihood.* Versions V and VI. Uppsala, Sweden: University of Uppsala.

Kavel, Don
1960 "Opportunities for beginning farmers. Why are they limited?" Nebraska Experiment Station Bulletin 452.

Kelly, Harold H.
1952 "Two Functions of Reference Groups." In Theodore Newcomb, et al. (eds.), *Readings in Social Psychology.* Revised Edition. New York: Holt, Rinehart & Winston, Inc.

Kloppenburg, Jr., J. R. and C. C. Geisler
1983 "The agricultural ladder revisited: Which way is up?" Paper presented at the Annual Midwest Meetings of the Sociological Society, Kansas City, Missouri.

Kuvlesky, William P., and David H. Reynolds
1970 *Occupational Aspirations and Expectations of Youth: A Bibliography of Research Literature: Volume I.* Department of Agriculture Economics and Rural Sociology, Texas A & M University, Departmental Information Report 70-5.

Kuvlesky, William P., and Robert C. Bealer
1967 "The relevance of adolescent's occupational aspiration for subsequent job attainments." *Rural Sociology* 32:290-301

Lasley Paul
1985b *Summary: Iowa Farm and Rural Life Poll.* Iowa State University Cooperative Extension Service Pm-1237.

Lenin, V. I.
1964 "Capitalism and the agriculture in the United States." In *Collected Works.* Moscow: Progressive Publishers.

Lewin Kurt, Tamara Dembo, Leon Festinger, and Pauline S. Sears
1944 "Level of Aspiration." In J. Mc V. Hunt (ed.) *Personality and Behavior Disorders.* New York: Ronald Press.

Lianos, T. P. and Q. Paris
1972 "American Agriculture and the Prophecy of Incresing Misery." *American Journal of Agricultural Economics* 54:570- 577.

Locke, John
1952 "Concerning civil government." In Robert M. Hutchins (ed.) *Great Books of the Western World.* Vol. 25. London: Encyclopedia Britannica, Inc.

Long, Scott J.
1983 *Covariance Structure Models: An Introduction to LISREL.* Beverly Hills: Sage Publications.

Lord, George F. and William W. Falk
1980a "An Exploratory Analysis of Individualist versus Structuralist Explanations of Income." *Social Forces* 59:376- 391.

Lynd, S.
1965 *Class Conflict, Slavery, & the United States Constitution.* New York: The Bobbs-Merrill Co., Inc.

Lyson, Thomas A.
1982 "Stability and change in farming plans: Results from a longitudinal study of young adults." *Rural Sociology* 47:544-556.

Lyson, T. A.
1979 "Going to college: An emerging rung on the agricultural ladder." *Rural Sociology* 44:773-790.

Mann, S. A. and J. M. Dickson
1980 "State and agriculture in two eras of american capitalism." In F. H. Buttel and H. Newby (eds.), *The Rural Sociology of the Advanced societies.* Montclair, N.J: Allanheld, Osman & Co.

Mc Connell, Grant
1969 *The Decline of Agrarian Democracy.* New York: Atheneum.

Mead, George Herbert
1934 *Mind, Self, and Society.* Chicago: University of Chicago Press.

Merton, Robert K., George G. Reader, and Patricia L. Kendall
1957 *The Student-Physician.* Cambridge. Mass.: Harvard University Press.

Molnar, Joseph J., and John E. Dunkelberger
1981 "The expectation to farm: An interaction of background and experience." *Rural Sociology* 46: 62-84.

Moore, B.
1966 *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World.* Boston: Beacon Press.

Newby, Howard and Frederick H. Buttel
1980 "Toward a critical Rural Sociology." In Frederick H. Buttel, and Howard Newby (eds.), *The Rural Sociology of the Advanced Societies: Critical Perspectives.* Montclair: Allanheld, Osmun.

Nilsen, Sigurd R.
1979 *Assessment of Employment and Unemployment Statistics for Nonmetropolitan Areas.* Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, Rural Development Research Report 18.

Norusis, Marija J.
1987 The SPSS GUIDE to Data Analysis for SPSSx. Chicago: SPSS Inc.

Nisbet, Robert and Robert G. Perrin
1977 *The Social Bond.* New York: Alfred A. Knopf.

Nunally, Jum C.
1978 *Psychometric Theory.* 2d ed. New York: McGraw-Hill.

O'Connor, James
1973 *The Fiscal Crisis of the State.* New York: St. Martin's Press.

Otto, Daniel
1986 "Analysis of farmers leaving agriculture for Financial Reasons: Summary of Survey results from 1984." In Joint Economic Committee Congress of the United States, *New Dimensions in Rural Policy: Building Upon our Heritage.* Washington: U.S. Government Printing Office.

Otto, Luther B., and Archibald O. Haller
1979 "Evidence for a social psychological view of the status attainment process: four studies compared." *Social Forces* 57:887-914.

Pavalko, Ronald M.
1971 *Sociology of Occupations and Professions.* Itasca, Illinois: F. E. Peacock Publishers, Inc.

Petrulis, Mindy F., and Bernal L. Green
1986 "Agriculture's role in the economic structure of rural America." In Joint Economic Committee, Congress of the United States, New Dimensions in Rural Policy: Building Upon Our Heritage. Washington, D.C.: U.S. Government Printing Office.

Portes, Alejandro, Archibald O. Haller, and William H. Sewell
1968 "Professional-executive vs farming as unique occupational choices." *Rural Sociology* 33:153-159.

Quarantelli, E. L., and Russel R. Dynes
1977 "Response to social crisis and disaster." *Annual Review of Sociology* 3:23-49.

Rodefeld, R. D.
1978 "Trends in U.S. farm Organizational Structure and type." In R. D. Rodefeld et al. (eds.), *Change in Rural America: Causes, Consequences and Alternatives.* St. Louis, Missouri: Mosley.

Rogers, Everett M. and Rabel J. Burdge
1972 *Social Change in Rural Societies.* New York: ACC.

Schertz, Lyle P.
1979 "A dramatic transformation." In Lyle P. Schertz and Others. *Another Revolution in U.S. Farming?* U.S. Department of Agriculture. Economics, Statistics, and Cooperatives Service. Agricultural Economic Report No. 441.

Schwarzeller, Harry K.
1959 "Value orientation in educational and occupational choices." *Rural Sociology* 24:246-256.

Sewell, William H. , Archibald O. Haller, and Alejandro Portes
1969 "The educational and early occupational attainment process." *American Sociological Review* 34:89-92.

Sewell, William H., Archibald O. Haller, and Murray A. Straus
1957 "Social status and educational and occupational aspirations." *American Sociological Review* 22:67-73.

Shibutani, Tamotsu
1955 Reference Groups as Perspectives. *American Journal of Sociology* 61:562-569.

Sims, N. L.
1934 *Elements of Rural Sociology.* New York, New York: Thomas Y. Crowell Company.

Spillman, W. J.
1919 "The agricultural ladder." *American Economic Review.* Supplement 9:170-179.

Stallings, R. A.
1973 *The Community Context of Crisis Management.* American Behavioral Science 16: 315-325.

Stinchcombe, Arthur L.
1961 "Agriculture enterprise and rural class relations." American *Journal of Sociology* 67: 165-176.

Straus, Murray A.
1956 "Personal characteristics and functional needs in the choice of farming as an occupation." *Rural Sociology* 21: 257- 266.

Super, Donald
1957 *The Psychology of Careers.* New York: Harper and Row, Publishers.

Thomas, W. I. (ed.)
1909 *Source Book for Social Origins.* Chicago: University of Chicago Press.

U.S. Bureau of the Census
1984 *1982 Census of Agriculture.* Washington, D.C.: U.S. Department of Commerce, vol. 1, part 51, ch. 1, table 5, p. 3.

Wallaces Farmer
1987 "FmHA considers selling Iowa farmland holdings." Wallaces Farmer 112:13.

Warheit, G. J.
1968 The Impact of Major Emergencies on the Functional Integration of Four American Communities. Ph.D. thesis, Ohio State University, Columbus.

Waxman, J. J.
1973a An analysis of Commercial Braodcasting Organization During Flood Disasters. Ph.D. thesis. Ohio State University, Columbus.

Weber, Max
1930 *The Protestant Ethic and the Spirit of Capitalism.* New York: Charles Scribner's Sons.

Wheaton, Blair, Bengt Muthen, Duane F. Alwin and Gene W. Summers
1977 "Assessing reliability and stability in panel models." In David R. Heise (ed.), *Sociological Methodology* 1977. San Francisco, California: Jossey-Bass Publishers.

Zahler, H. S.
1943 *Eastern Workingmen and National Land Policy*, 1829-1862. New York: Columbia University Press.

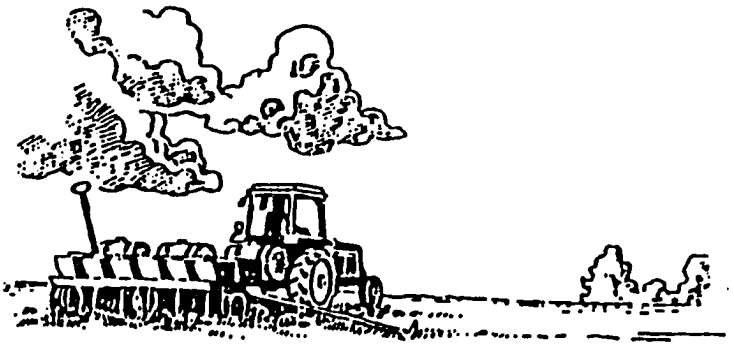
Zinn, H.
1980 *A People's History of the United States.* New York: Harper Colophon Books.

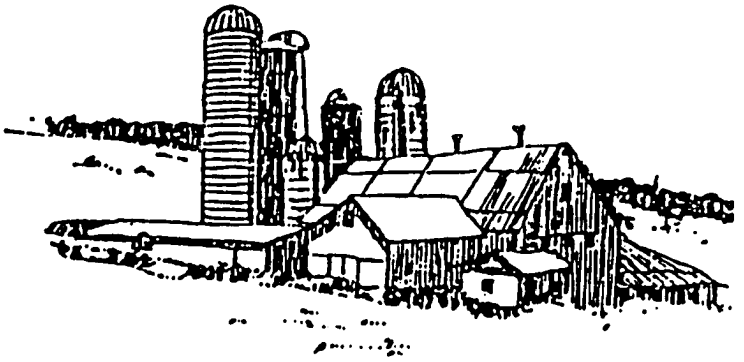
7 APPENDIX A

CAREER CHOICES OF IOWA FARM YOUTH

ATTITUDES OF THE PARENTS OF ISU STUDENTS

A Study by the Department of Sociology
Iowa State University





DEPARTMENT OF SOCIOLOGY
107 EAST HALL
IOWA STATE UNIVERSITY
AMES, IOWA 50011

This questionnaire is designed to gather information from the parents of all the members of a sample of Iowa State University students. Everytime the word "your son" is mentioned in the questionnaire we refer to your son

_____ who is attending Iowa State University.

BACKGROUND INFORMATION:

1. We would like to get some basic information on your current family situation. Please provide the following information for each of your family members.

FAMILY MEMBERS	Sex M F	Age	Currently in school? YES NO	Highest grade completed	If employed, Major Occupation	If married, occupation of spouse
Husband	M	___	_____	_____	_____	NA
Wife	F	___	_____	_____	_____	NA
1st child	___	___	_____	_____	_____	_____
2nd child	___	___	_____	_____	_____	_____
3rd child	___	___	_____	_____	_____	_____
4th child	___	___	_____	_____	_____	_____
5th child	___	___	_____	_____	_____	_____
6th child	___	___	_____	_____	_____	_____
7th child	___	___	_____	_____	_____	_____
8th child	___	___	_____	_____	_____	_____
9th child	___	___	_____	_____	_____	_____
10th child	___	___	_____	_____	_____	_____

2. How many children currently live at home? _____

ON SON'S CAREER CHOICE:

3. How much has each of the following persons influenced your son's choice of a college major or a career? (Choose one for each category)

	Not at all	Somewhat	A great deal
a) father	_____	_____	_____
b) mother	_____	_____	_____
c) other close relatives	_____	_____	_____
d) high school counselor	_____	_____	_____
e) friends	_____	_____	_____
f) college adviser/teacher	_____	_____	_____

1

4. All other things being equal, what career would you like for your son to enter?

_____

OPINION ON AGRICULTURE AND RELATED ISSUES:

5. How do you see the overall outlook for a farmer like yourself in the years ahead? (Please check one)

_____Very good
_____Good
_____Fair
_____Not good at all
_____Other (Please specify) _____

6. If a young person came to you seeking advice about entering farming, what would you tell him?

_____

_____

Anything else?_____

7. If by chance you were to get enough money to live comfortably without farming, do you think that you would continue to farm anyway?
   a. Yes, definitely
   b. Yes, probably
   c. Uncertain
   d. No, probably not
   e. No, definitely not

8. Here are some statements about agriculture and society that are frequently expressed by people. Do you strongly agree, agree, are undecided, disagree, or strongly disagree with each of the following statements? (Circle the number)

   1 = strongly agree
   2 = agree
   3 = undecided
   4 = disagree
   5 = strongly disagree

a. Agriculture is the most basic occupation in our society, and almost all other occupations depend on it.	1	2	3	4	5
b. A depression in agriculture is likely to cause a depression in the entire country	1	2	3	4	5
c. Farming involves understanding and working with nature; therefore, it is a much more satisfying occupation than others	1	2	3	4	5
d. We hear so much about crime and corruption today because our nation is becoming so urbanized	1	2	3	4	5
e. Farming should be an occupation where farmers can make their economic decisions independently	1	2	3	4	5
f. A farmer should be proud if he can say that he owes money to no one	1	2	3	4	5
g. A farmer's first concern should be to make an adequate income and be less concerned with farming "as a way of life"	1	2	3	4	5
h. Farmers should raise all of the crops and livestock possible as long as there are hungry people	1	2	3	4	5

9. Please indicate below your feelings about the following items by circling the one response for each item that most closely represents your feelings.

1 = Not a problem
2 = A slight problem
3 = A moderate problem
4 = A very serious problem
5 = Not sure

a. The current economic condition of Iowa agriculture	1	2	3	4	5
b. The current financial condition of agribusiness firms in your area	1	2	3	4	5
c. The current financial condition of financial institutions in your area	1	2	3	4	5
d. Your own farm's financial condition	1	2	3	4	5

10. Listed below are several statements that people have made about the future of rural Iowa in the next five years. We would like your opinions about the likelihood of these things happening. If you feel the prediction will very likely happen, circle "1". If you feel the prediction is very unlikely to happen, circle "5".

1 = very likely
2 = somewhat likely
3 = uncertain
4 = somewhat unlikely
5 = very unlikely

a. The number of family farms will continue to decline	1	2	3	4	5
b. Low prices for farm products will put many farmers out of business	1	2	3	4	5
c. Adequate financing for beginning farmers will be difficult to obtain	1	2	3	4	5
d. Interest rates will remain high throughout the 1980's	1	2	3	4	5
e. Farmers will become more efficient in food production	1	2	3	4	5
f. Farmers income will not keep up with inflation	1	2	3	4	5
g. Larger farms will result in higher levels of living for farm families	1	2	3	4	5
h. Government at all levels will provide fewer services	1	2	3	4	5
i. Inflation will be a problem for farmers in the 1980's	1	2	3	4	5
k. Housing costs will prevent many people from buying a home	1	2	3	4	5
l. Farm families will have more free time to pursue leisure activities	1	2	3	4	5
m. The opportunity for young people to enter farming will be strong for the remainder of this decade	1	2	3	4	5
n. Farming will become increasingly regulated by the government	1	2	3	4	5

11. How would you best describe the current financial condition of your farm operation?

a. prospering
b. making a comfortable living
c. under some pressure and worried about paying bills
d. worried about bankruptcy or foreclosure
e. Other (please specify)_____

FARM OPERATION:

12. During the next five years, is it likely that you will: (Please circle one)

1. increase the size of your farming operation
2. decrease the size of your farming operation
3. maintain it at about the same level
4. Unsure about my future plans

13. How many years have you operated a farm on your own?

_____(Number of Years)

14. How many years have you operated the farm where you are now?

_____(Number of Years)

15. How many more years do you plan to farm ?

_____(Number of Years)

16. When you do give up farming, which one of the following will be the most likely reason?

a. retirement
b. financial pressures
c. more attractive career alternatives
d. decreased interest in farming
e. other (please specify) _____

17. Who do you think will operate your farm after you retire? (CHECK ONE).

_____Children
_____Son-in-law
_____Other relatives
_____Non relatives
_____Other (Please Specify)_____

_____

OFF-FARM WORK:

18. Please answer the following questions for yourself and your spouse.

		Operator	Spouse
a. Do you and/or your spouse work off the farm?	Yes	_____	_____
	No	_____	_____
b. If you or your spouse work off the farm, how many hours per week are devoted to the job? If neither works off the farm, enter zero for both times	Hours	_____	_____

19. As you view farming in the next five years, do you think that your farm profits will: (Please circle one)

a. increase b. decrease c. remain the same

d. Unsure about your farm profits during the next five years

FARM SIZE, INCOME AND RELATED ISSUES:

20. As you think about your own farming operation, do you consider it to be a: (Please circle one)

1. Small farm 2. Medium-size farm 3. Large farm

21. How would you characterize your current farming operation?

a. specialized crop operation
b. diversified grain and livestock operation
c. specialized livestock operation
d. Other _____

22. How many total acres did you farm in 1986?

_____(Number of Acres)

23. Of these acres, how many were:

rented _____ owned _____

24. Approximately what proportion of the labor used on your farm in 1986 was provided by either you or members of your immediate family?

a. 75 to 100% c. 25 to 49%
b. 50 to 74% d. less than 25%

25. Which of the following categories most closely approximates your gross farm sales total for 1986? (Please circle the number corresponding to your answer)

1.	less than $2,500	6.	$60,000	to	$79,000
2.	$2,500 to $9,999	7.	$80,000	to	$99,999
3.	$10,000 to $19,999	8.	$100,000	to	$199,999
4.	$20,000 to $39,999	9.	$200,000	to	$299,999
5.	$40,000 to $59,999	10.	$300,000	or	More

26. Which one of the following categories most closely approximates your average annual family income before taxes, for the last three years? Please include income from all sources. (Circle the number)

1.	under $4,999	8.	$40,000	to	$49,999
2.	$5,000 to $9,999	9.	$50,000	to	$59,999
3.	$10,000 to $14,999	10.	$60,000	to	$69,999
4.	$15,000 to $19,999	11.	$70,000	to	$79,999
5.	$20,000 to $24,999	12.	$80,000	to	$89,999
6.	$25,000 to $29,999	13.	$90,000	to	$99,999
7.	$30,000 to $39,999	14.	$100,000	or	More

27. Which one of the following categories most closely approximates your net farm income for 1986? Net farm income may be calculated as adjusted gross cash income, reflecting changes in inventory values, plus non-money income minus total operating expenses, including both interest and depriciation of capital stock. (Circle the number)

1.	under $4,999	8.	$40,000	to	$49,999
2.	$5,000 to $9,999	9.	$50,000	to	$59,999
3.	$10,000 to $14,999	10.	$60,000	to	$69,999
4.	$15,000 to $19,999	11.	$70,000	to	$79,999
5.	$20,000 to $24,999	12.	$80,000	to	$89,999
6.	$25,000 to $29,999	13.	$90,000	to	$99,999
7.	$30,000 to $39,999	14.	$100,000	or	More

28. For the last three years, about what percentage of your family's total income was from farming?

_____(percent)

29. As of January, 1987 what was the estimated current market value of your farm assets? (Please include land, machinery, buildings and livestock)

_____Total Assets

30. As of January, 1987 what was your estimated total liabilities, including all loans for land, machinery, buildings and livestock?

_____Total Liabilities

THANK YOU FOR YOUR HELP!

Please feel free to use the blank space below for any additional comments that you may have about your own farming operation and or about your sons career.

Your cooperation is greatly appreciated! If you would like a summary of the study, please check one. Yes _____ No _____

****

Postage for the questionnaire is prepaid, so all you need to do is staple or tape it and drop it in a mailbox.

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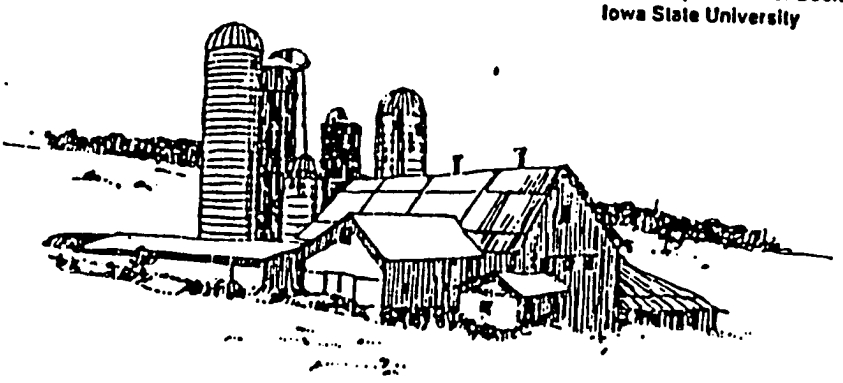
CAREER CHOICES OF IOWA FARM YOUTH

ATTITUDES OF ISU STUDENTS

A Study by the Department of Sociology
Iowa State University



DEPARTMENT OF SOCIOLOGY
107 EAST HALL
IOWA STATE UNIVERSITY
AMES, IOWA 50011

This questionnaire is designed to gather information from students who are residents of Iowa and whose parents are currently involved in farm operation or have been involved in farming in the recent past.

Have your parents either owned OR operated a farm since 1980?

YES _____ NO _____

If you answered YES, please continue with the following questions.

If you answered NO, please return the questionnaire. Use the postage paid self addressed envelope. Thank you for your cooperation.

EDUCATIONAL INFORMATION

1. Please indicate the College in which you are currently enrolled:
   _____Agriculture
   _____Engineering
   _____Home Economics
   _____Education
   _____Design
   _____Business Administration
   _____Sciences & Humanities

2. Are you a _____Freshman
   _____Sophomore
   _____Junior
   _____Senior

3. What is your declared major(s)? _____

4. What is your declared minor? (if any)_____ ____ None

5. Have you ever changed your major? _____Yes (Please Continue)
   _____No (Go to Q8)

6. If yes to question 5,
   How many times have you changed your major?
   _____(Number of times)

7. List each of your majors and indicate briefly the primary reason for changing each of these times :
   First major:_____ Reason _____
   Second major:_____ Reason _____
   Third major:_____ Reason _____

8. What was your approximate high school academic ranking?
   _____ (percentile)

9. What is your current grade point average (GPA) at Iowa State University?
   _____

10. Do you plan to continue your education after receiving your Bachelors degree?
    Yes _____
    No _____
    Undecided _____

GENERAL INFORMATION

11. What is your age? _____

12. What is your birth order in the family? (i.e. first child, second child, so on).
_____

13. Approximately how many miles is your hometown from the nearest city of 50,000 population? (If you live in a city of 50,000 or more, enter zero.)
_____ miles

14. Have you ever been outside of Iowa? _____Yes _____No

15. If yes, approximately how many times? _____ (Number of times)

16. Have you ever been outside of the USA? _____Yes _____No

17. If yes, approximately how many times? _____ (Number of times)

EXTRA CURRICULAR ACTIVITIES

18. Have you ever participated in a livestock show or festival?
Yes _____ No _____

19. Have you ever been a participant (e.g. showing animals) in a county or state fair?
Yes _____ No _____

20. Have you ever been in FFA (Future Farmers of America)?
Yes _____ No _____

21. If yes, for how many years? _____ years

22. Have you ever held a local or state office in FFA?
Yes _____ No _____

23. Have you ever been in a 4-H club?
Yes _____ No _____

24. If yes, for how many years? _____ years

25. Have you ever held a local or state office in 4-H?
Yes _____ No _____

26. Please check each of the following events or persons that have influenced your career plans while attending Iowa State University.

___ Campus lecture
___ Journal/newspaper article
___ Class lab or field assignments
___ Discussion with someone in a social situation
___ Discussion with a professioonal person in a career I would like to enter
___ An academic advisor
___ A professor
___ My roommate
___ Friends I associate with
___ Coursework
___ A class lecture
___ Other (please specify) _____

_____

27. Please list below the names of the organization(s) you have been involved in the past year.

1. _____
2. _____
3. _____
4. _____
5. _____

28. Please list below the name of the organization(s) on campus that you are a member of.

1. _____
2. _____
3. _____
4. _____
5. _____

FARM WORK EXPERIENCE AND FUTURE FARM OPERATION

29. While you were in high school, on the average, how many hours a week did you spend doing farmwork? (CHECK ONE)

0 hours _____
1 - 10 hours _____
11 - 20 hours _____
21 - 40 hours _____
40 or more hours _____

30. Were you paid for the work you did on the farm? _____Yes _____No

31. Do you still work on farm whenever you get a chance? _____Yes _____No

32. Would you like to take over the family farm operation if such an opportunity arose?
_____Yes _____No

33. Do you have any brothers or sisters who are very interested in taking over the family farm operaton if the opportunity arose?
_____Yes _____No

34. Do you expect that you will eventually inherit farm land from your parents?
_____Yes _____No

OPINION ON AGRICULTURE AND CURRENT CHANGES

35. Here are some statements about agriculture and society that are often expressed by people. Do you strongly agree, agree, are undecided, disagree, or strongly disagree with each of the following statements? (CIRCLE THE NUMBER)

1 = strongly agree
2 = agree
3 = undecided
4 = disagree
5 = strongly disagree

a. Agriculture is the most basic occupation in our society, and almost all other occupations depend on it.	1	2	3	4	5
b. A depression in agriculture is likely to cause a depression in the entire country	1	2	3	4	5
c. Farming involves under standing and working with nature; therefore, it is a much more satisfying occupation than others	1	2	3	4	5

c. Farming involves under standing and working with nature; therefore, it is a much more satisfying occupation than others	1	2	3	4	5
d. We hear so much about crime and corruption today because our nation is becoming so urbanized	1	2	3	4	5
e. Farming should be an occupation where farmers can make their economic decisions independently	1	2	3	4	5
f. A farmer should be proud if he can say that he owes money to no one	1	2	3	4	5
g. A farmer's first concern should be to make an adequate income and be less concerned with farming "as a way of life"	1	2	3	4	5
h. Farmers should raise all of the crops and livestock possible as long as there are hungry people	1	2	3	4	5

36. Please indicate below your feelings about the following items by circling the one response for each item that most closely represents your feelings.

1 = Not a problem
2 = A slight problem
3 = A moderate problem
4 = A very serious problem
5 = Not sure

a. The current economic condition of Iowa agriculture	1	2	3	4	5
b. The current financial condition of agribusiness firms in your area	1	2	3	4	5
c. The current financial condition of financial institutions in your area	1	2	3	4	5
d. Your parents' farm's financial condition	1	2	3	4	5

37. Listed below are several statements that people have recently made about the future of rural Iowa over the next five years. We would like your opinions about the likelihood of these things happening. If you feel the prediction will very likely happen, circle "1". If you feel the prediction is very unlikely to happen, circle "5".

1 = very likely
2 = somewhat likely
3 = uncertain
4 = somewhat unlikely
5 = very unlikely

a. The number of family farms will continue to decline	1	2	3	4	5
b. Low prices for farm products will put many farmers out of business	1	2	3	4	5
c. Adequate financing for beginning farmers will be difficult to obtain	1	2	3	4	5
d. Interest rates will remain high throughout the 1980's	1	2	3	4	5

h. Government at all levels will provide fewer services	1	2	3	4	5
i. Inflation will be a problem for farmers in the 1980's	1	2	3	4	5
k. Housing costs will prevent many people from buying a home	1	2	3	4	5
l. Farm families will have more free time to pursue leisure activities	1	2	3	4	5
m. The opportunity for young people to enter farming will be strong for the remainder of this decade	1	2	3	4	5
n. Farming will become increasingly regulated by the government	1	2	3	4	5

GENERAL OPINION

38. Below are a number of statements about various topics. They have been collected from different groups of people and represent a variety of opinions. There are no right or wrong answers to these questions; for every statement there are large numbers of people who agree and disagree. Please indicate whether you agree or disagree with each statement as follows.

1 = Strongly agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly disagree

a. It isn't wise to plan too far ahead because most things turn out to be a matter of good or bad fortune anyhow.	1	2	3	4	5
b. I take a positive attitude toward myself.	1	2	3	4	5
c. I certainly feel useless at times.	1	2	3	4	5
d. At times I think I am no good at all.	1	2	3	4	5
e. On the whole I am satisfied with myself.	1	2	3	4	5
f. Success is a matter of getting good breaks.	1	2	3	4	5
g. I have usually found that what is going to happen will happen, regardless of my action.	1	2	3	4	5
h. Many times I feel that I have little influence over the things that happen to me.	1	2	3	4	5
i. It is difficult for ordinary people to have much control over what politicians do in office.	1	2	3	4	5
j. Life is too full of uncertainties.	1	2	3	4	5

39. How much has the current economic condition of agriculture affected your life on the following ways: (Circle the Number)

1=Great Deal 2=Somewhat 3=Uncertain 4=Not Much 5=Not At All

a. Your Educational Plans	1	2	3	4	5
b. Your Career Plans	1	2	3	4	5
c. Your Personal Relationship	1	2	3	4	5

FARMING OPPORTUNITY

39. Here are some statements about farming and opportunities that are often expressed by young people. Do you strongly agree, agree, are undecided, disagree, or strongly disagree with each of the following statements? (CIRCLE THE NUMBER)

1 = strongly agree
2 = agree
3 = undecided
4 = disagree
5 = strongly disagree

a. There are few opportunities left in farming	1	2	3	4	5
b. The future of farming looks more promising than it did five years ago	1	2	3	4	5
c. My parents farm has largely been spared the wrath of the farm crisis	1	2	3	4	5
d. The present farm crisis has no effect, whatsoever, on my future career plans	1	2	3	4	5
e. The farm crisis has finally started to disappear	1	2	3	4	5
f. In a few years the farm crisis will be over and a strong farm economy will emerge	1	2	3	4	5
g. All other things being equal, if I had a chance to choose between farming and any other occupation I would definitely choose farming	1	2	3	4	5
h. The farm crisis has weakened the farm family structure	1	2	3	4	5
i. A majority of my friends from rural areas have experienced or are presently experiencing the stress of the farm crisis	1	2	3	4	5
j. The farmers under financial stress are to blame for their own problem	1	2	3	4	5
k. The government has a responsibility to help the farmers	1	2	3	4	5
l. The way everything looks, I feel the farm problem will get worse	1	2	3	4	5
m. If farming was currently more profitable I would have gone directly into farming instead of coming to college	1	2	3	4	5
n. Corporate farms are a threat to the future of the family farm	1	2	3	4	5
o. Small farms are outmoded and inherently unprofitable	1	2	3	4	5
p. There will be fewer and larger farms in the next 10-20 years	1	2	3	4	5
q. In the next 10-20 years farmers will get higher prices for their grain	1	2	3	4	5
r. In the next 10-20 years, the government will be spending more money on farm programs	1	2	3	4	5
s. In the next 10-20 years, the Iowa farm economy will be thriving	1	2	3	4	5

41. Given the ideal situation where everything would work according to your wishes, how would you rank each of the following five statements on career choice? Assign a 1 to the statement that comes closest to your ideal career path, a 2 to the statement which comes closest to your second choice, etc.

RANK

_____ a. To enter farming on a full-time basis upon graduation.

_____ b. To enter farming on a part-time basis upon graduation.

_____ c. To pursue an off-farm career upon graduation and return to farming later on.

_____ d. To pursue a non-farm agricultural career upon graduation (e.g.: ag sales, marketing, government, etc).

_____ e. To pursue a non-farm non-agricultural career upon graduation.

42. With the existence of certain social and economic conditions, people are sometimes unable to pursue their ideal careers. Given the realities of current conditions, how would you rank each of the following five statements as they relate to your own career plans. Assign the number 1 to the statement that comes closest to representing the career choice that appears to be the most realistic, 2 to the statement which comes closest to your second most realistic choice, etc.

RANK

_____ a. To enter farming on a full-time basis upon graduation.

_____ b. To enter farming on a part-time basis upon graduation.

_____ c. To pursue an off-farm career upon graduation and return to farming later on.

_____ d. To pursue a non-farm agricultural career upon graduation (e.g.: ag sales, marketing, government, etc).

_____ e. To pursue a non-farm non-agricultural career upon graduation.

THANK YOU FOR YOUR HELP!

Please feel free to use the next page for any additional comments that you may have about your occupational aspiration and plans to farm or this questionnaire.

Your cooperation in this study is greatly appreciated! If you would like a summary of the study, please check one. Yes___ No___

****

Postage for the questionnaire is prepaid, so all you need to do is staple or tape it and drop it in a mailbox.

****

8 APPENDIX B

Table 8.1: Bivariate correlation coefficients for the LISREL input variables, by hypothesis

Relationship	Coefficient (ρ)	
Hypothesis 1: (Parents' economic status by career aspiration)		
IINDEX/NETFINC	0.118	*
IINDEX/PERFINC	0.119	*
IINDEX/LEVERAGE	-0.037	
RINDEX/NETFINC	0.247	**
RINDEX/PERFINC	0.131	**
RINDEX/LEVERAGE	-0.183	
Hypothesis 2: (Parents' economic status by son's perceived opportunities)		
NETFINC/FARMOPER	0.593	**
NETFINC/FEEL4	0.408	**
NETFINC/INHERIT	-0.153	**
PERFINC/FARMOPER	0.254	**
PERFINC/FEEL4	0.081	*
PERFINC/INHERIT	-0.090	**
LEVERAGE/FARMOPER	-0.381	**
LEVERAGE/FEEL4	-0.401	**
LEVERAGE/INHERIT	-0.056	

* Significant at 0.05 level

** Significant at 0.01 level

Table 8.1: (Continued)

Relationship	Coefficient (ρ)	
Hypothesis 3: (Parents' economic status by son's assessment of the farm crisis)		
NETFINC/FUTURE12	0.134	**
NETFINC/FARMOP2	0.135	**
NETFINC/FARMOP5	0.141	**
NETFINC/FARMOP6	0.085	**
NETFINC/FARMOP17	0.048	
NETFINC/FARMOP19	-0.039	
PETFINC/FUTURE12	0.031	
PETFINC/FARMOP2	0.130	
PETFINC/FARMOP5	0.059	*
PETFINC/FARMOP6	0.046	*
PETFINC/FARMOP17	-0.105	
PETFINC/FARMOP19	-0.050	
LEVERAGE/FUTURE12	0.024	
LEVERAGE/FARMOP2	-0.032	
LEVERAGE/FARMOP5	-0.067	
LEVERAGE/FARMOP6	-0.070	
LEVERAGE/FARMOP17	0.106	
LEVERAGE/FARMOP19	0.067	

Table 8.1: (Continued)

Relationship	Coefficient (ρ)	
Hypothesis 4: (Parents' agrarianism by son's perceived opportunities)		
PAGSOC1/FARMOPER	0.057	
PAGSOC1/FEEL4	-0.141	*
PAGSOC1/INHERIT	-0.018	
PAGSOC2/FARMOPER	-0.088	
PAGSOC2/FEEL4	-0.155	
PAGSOC2/INHERIT	0.122	
PAGSOC3/FARMOPER	-0.050	
PAGSOC3/FEEL4	-0.025	
PAGSOC3/INHERIT	0.086	
PAGSOC4/FARMOPER	-0.050	
PAGSOC4/FEEL4	-0.062	
PAGSOC4/INHERIT	-0.068	*
PAGSOC5/FARMOPER	-0.116	
PAGSOC5/FEEL4	-0.078	
PAGSOC5/INHERIT	0.139	
PAGSOC6/FARMOPER	-0.005	
PAGSOC6/FEEL4	0.214	
PAGSOC6/INHERIT	0.062	*

Table 8.1: (Continued)

Relationship	Coefficient (ρ)
Hypothesis 5: (Parents' agrarianism by son's assessment of farm crisis)	
PAGSOC1/FUTURE12	-0.084
PAGSOC1/FARMOP2	0.084
PAGSOC1/FARMOP5	0.006
PAGSOC1/FARMOP6	-0.040
PAGSOC1/FARMOP17	0.046
PAGSOC1/FARMOP19	-0.037
PAGSOC2/FUTURE12	-0.047
PAGSOC2/FARMOP2	-0.041
PAGSOC2/FARMOP5	-0.031
PAGSOC2/FARMOP6	0.056
PAGSOC2/FARMOP17	-0.008
PAGSOC2/FARMOP19	-0.005
PAGSOC3/FUTURE12	-0.043
PAGSOC3/FARMOP2	0.153
PAGSOC3/FARMOP5	0.095
PAGSOC3/FARMOP6	-0.125

Table 8.1: (Continued)

Relationship	Coefficient (ρ)	
Hypothesis 5: (Continued)		
PAGSOC3/FARMOP17	0.041	
PAGSOC3/FARMOP19	0.012	
PAGSOC4/FUTURE12	-0.068	
PAGSOC4/FARMOP2	0.004	
PAGSOC4/FARMOP5	0.093	
PAGSOC4/FARMOP6	-0.083	
PAGSOC4/FARMOP17	0.131	*
PAGSOC4/FARMOP19	0.054	
PAGSOC5/FUTURE12	0.013	
PAGSOC5/FARMOP2	0.154	
PAGSOC5/FARMOP5	-0.092	
PAGSOC5/FARMOP6	-0.111	
PAGSOC5/FARMOP17	0.184	*
PAGSOC5/FARMOP19	0.076	
PAGSOC6/FUTURE12	-0.040	
PAGSOC6/FARMOP2	0.004	
PAGSOC6/FARMOP5	0.018	
PAGSOC6/FARMOP6	-0.014	
PAGSOC6/FARMOP17	0.028	
PAGSOC6/FARMOP19	-0.010	

Table 8.1: (Continued)

Relationship	Coefficient (ρ)	
Hypothesis 6: (Parents' agrarianism by career aspiration)		
PAGSOC1/IINDEX	0.038	*
PAGSOC2/IINDEX	-0.086	
PAGSOC3/IINDEX	0.022	
PAGSOC4/IINDEX	0.054	
PAGSOC5/IINDEX	0.041	
PAGSOC6/IINDEX	0.090	
PAGSOC1/RINDEX	0.102	
PAGSOC2/RINDEX	-0.038	
PAGSOC3/RINDEX	0.005	
PAGSOC4/RINDEX	0.072	
PAGSOC5/RINDEX	0.094	
PAGSOC6/RINDEX	0.151	
Hypothesis 7: (Son's exposure by career aspiration)		
EXPOSURE/IINDEX	-0.156	
TOUTIA/IINDEX	0.077	
TOUTUSA/IINDEX	-0.124	
EXPOSURE/RINDEX	-0.091	
TOUTIA/RINDEX	0.053	
TOUTUSA/RINDEX	-0.088	

Table 8.1: (Continued)

Relationship	Coefficient (ρ)	
Hypothesis 8: (Son's agrarianism by son's perceived opportunities)		
AGSOC1/FARMOER	-0.019	
AGSOC1/FEEL4	-0.076	**
AGSOC1/INHERIT	0.144	
AGSOC2/FARMOER	-0.100	**
AGSOC2/FEEL4	-0.143	**
AGSOC2/INHERIT	-0.003	
AGSOC3/FARMOER	0.020	
AGSOC3/FEEL4	-0.116	
AGSOC3/INHERIT	-0.119	
AGSOC4/FARMOER	-0.006	
AGSOC4/FEEL4	-0.084	
AGSOC4/INHERIT	-0.180	**
AGSOC6/FARMOER	0.024	
AGSOC6/FEEL4	0.065	
AGSOC6/INHERIT	0.020	

Table 8.1: (Continued)

Relationship	Coefficient (ρ)
Hypothesis 9: (Son's agrarianism by son's assessment of farm crisis)	
AGSOC1/FUTURE12	0.070
AGSOC1/FARMO2	0.090
AGSOC1/FARMO5	0.041
AGSOC1/FARMO6	0.112
AGSOC1/FARMO17	0.017
AGSOC1/FARMO19	0.048
AGSOC2/FUTURE12	0.019
AGSOC2/FARMO2	0.007
AGSOC2/FARMO5	0.032
AGSOC2/FARMO6	0.009
AGSOC2/FARMO17	0.013
AGSOC2/FARMO19	0.001
AGSOC3/FUTURE12	0.055
AGSOC3/FARMO2	0.074
AGSOC3/FARMO5	0.028
AGSOC3/FARMO6	0.045
AGSOC3/FARMO17	0.026
AGSOC3/FARMO19	0.015
AGSOC4/FUTURE12	0.144
AGSOC4/FARMO2	0.061
AGSOC4/FARMO5	0.065
AGSOC4/FARMO6	0.022
AGSOC4/FARMO17	0.054
AGSOC4/FARMO19	0.014
AGSOC6/FUTURE12	0.025
AGSOC6/FARMO2	0.071
AGSOC6/FARMO5	0.165
AGSOC6/FARMO6	0.016
AGSOC6/FARMO17	0.091
AGSOC6/FARMO19	0.083

Table 8.1: (Continue)

Relationship	Coefficient (ρ)	
Hypothesis 10: (Son's agrarianism by career aspiration)		
AGSOC1/IINDEX	0.190	**
AGSOC2/IINDEX	0.173	**
AGSOC3/IINDEX	0.402	**
AGSOC4/IINDEX	0.102	**
AGSOC6/IINDEX	0.000	
AGSOC1/RINDEX	0.087	**
AGSOC2/RINDEX	0.128	**
AGSOC3/RINDEX	0.295	**
AGSOC4/RINDEX	0.119	**
AGSOC6/RINDEX	0.058	

Table 8.1: (Continued)

Relationship	Coefficient (ρ)	
Hypothesis 11: (Son's perceived opportunities by career aspiration)		
FARMOPER/IINDEX	0.133	
FEEL4/IINDEX	-0.029	
INHERIT/IINDEX	-0.116	
FARMOPER/RINDEX	0.291	
FEEL4/RINDEX	0.096	
INHERIT/RINDEX	-0.268	
Hypothesis 12: (Son's perceived opportunities by son's assessment of the farm crisis)		
FARMOPER/FUTURE12	0.030	*
FARMOPER/FARMOP2	0.123	*
FARMOPER/FARMOP5	0.329	**
FARMOPER/FARMOP6	0.193	**
FARMOPER/FARMOP17	0.043	
FARMOPER/FARMOP19	-0.012	
FEEL4/FUTURE12	-0.051	
FEEL4/FARMOP2	0.106	**
FEEL4/FARMOP5	0.181	**
FEEL4/FARMOP6	0.107	**
FEEL4/FARMOP17	-0.037	*
FEEL4/FARMOP19	0.039	**
INHERIT/FUTURE12	-0.024	
INHERIT/FARMOP2	-0.233	**
INHERIT/FARMOP5	-0.266	**
INHERIT/FARMOP6	-0.018	*
INHERIT/FARMOP17	-0.047	
INHERIT/FARMOP19	-0.296	*

Table 8.1: (Continued)

Relationship	Coefficient (ρ)	
Hypothesis 13: (Son's assessment of farm crisis by career aspirations)		
FUTURE12/IINDEX	0.175	**
FARMOP2/IINDEX	0.228	**
FARMOP5/IINDEX	0.075	**
FARMOP6/IINDEX	0.088	**
FARMOP17/IINDEX	0.010	*
FARMOP19/IINDEX	0.076	**
FUTURE12/RINDEX	0.296	**
FARMOP2/RINDEX	0.310	**
FARMOP5/RINDEX	0.190	**
FARMOP6/RINDEX	0.088	**
FARMOP17/RINDEX	0.081	**
FARMOP19/RINDEX	0.135	**